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USER'S MANUAL FOR ESTIMATING TARGET ACQUISITION RANGE WHEN EMPLOYING TV SENSORS

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DECEMBER 1983

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Past Weather - Our Future

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A user's guide for estimating the maximum acquisition ground range from TV sensor to target by a manual method is presented. The guide includes background information on visual contrast transmittance, a sample maximum ground range sample worksheet, and directions on how to use it. This document also includes tables of reflectance values and many other aids needed to complete the worksheet. Finally, the technical note contains 360 pages of contrast transmittance charts plotted by ground range and flight altitude.

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USER'S MANUAL FOR ESTIMATING TARGET
ACQUISITION RANGE WHEN EMPLOYING TV SENSORS

INTRODUCTION

This technical note has been designed to provide AWS personnel with the capability to give environmental support to customers who use acquisition or tracking systems that employ TV sensors. The forecast techniques provided in this text should be used only if the TV-Tactical Decision Aid is not available. The manual method described herein can be used to estimate the maximum acquisition ground range from TV sensor to target. User inputs have been kept to a minimum and include only basic mission and forecast variables. The User's Guide section is preceeded by a section on TV sensor background material which, hopefully, will provide the user with the necessary "feel" to use this publication with confidence.

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TV SENSOR BACKGROUND MATERIAL

There are many kinds of electro-optical (E-O) sensors. They may be classed according to their electromagnetic wavelength sensitivities, i.e., TV (0.4 to 0.7 micrometers), near IR (0.8 to 2.0 micrometers), middle IR (2.0 to 5.0 micrometers), and far IR (5.0 to 13.0 micrometers). They may also be classed according to their method of operation, i.e., active (has its own radiation source), semi-active (senses emissions from an articificial source of radiation), or passive (senses radiation emitted by a natural source). Finally, they may be classed according to their function, i.e., target search, detection, lock-on, tracking, or evaluation. Our focus will be on passive TV sensors that may be used in multiple roles but will primarily be used for detection and/or lock-on.

The operational use and limitations of TV sensors are relatively easy to appreciate in contrast to infrared sensors. This is due to the fact that TV sensors respond to visible light in much the same way as our eyes (biological E-O sensors). However, given equal optics (light gathering device) the eye still has greater ability to distinguish the contrast or difference between an object and its background.

The question of interest to us is "At what distance can our TV sensor 'see' an object against its background?" Quantitatively, we assess whether or not a TV sensor can be used based on predictions of target/background contrast received at the sensor position. The problem involves both the specific scene and the visible image transmission (in terms of target/background contrast) through the atmosphere. Three important categories of visual contrast are: inherent contrast, apparent contrast, and threshold contrast.

Inherent contrast (C_0) is the visual contrast that exists between the object (in our case target) and its background at zero range. Its value ranges from 0 to 1. It is given in terms of the difference between the target and background luminances (brightness) divided by the larger of the two luminances. For target scenes made visible solely by reflected light, target and background reflectances can be substituted for luminances. Thus, for **passive TV sensors**:

$$C_o = |R_t - R_b|/R_{max} \qquad (1\text{-}1)$$

where R_t is the target reflectance, R_b is the background reflectance, and R_{max} is larger of R_t and R_b.

The visual contrast we see at some distance from the object/background is called the apparent contrast (C_r). The atmosphere acts as a contrast-degrading medium causing C_r to decrease as the range increases. The deceivingly simple equation for apparent contrast:

$$C_r = C_o \times T_c \qquad (1\text{-}2)$$

where C_0 has been defined above and T_c is the contrast transmission (a very involved quantity).

The algorithms used to compute the TV contrast transmittance curves contained in the Appendix H were developed at the Rand Corporation. They were first used as part of the WETTA (Weather Effects on Tactical Target Acquisition) model. The "transmittance" is a complicated function of many environmental

factors including the relative positions of the sun, sensor, and target. Technically, the word transmittance refers to radiation removed by the extinction processes of scattering and absorption. During the transfer of visible contrast through the atmosphere, however, the primary degradation process is the scattering of light into the field of view. Nevertheless, we will still use the term "contrast transmittance."

The model computes contrast transmittance as a function of the range from the sensor to the target, the "sky-ground ratio parameter," and the atmospheric extinction coefficient for visible light. The extinction coefficient is calculated as a straightforward function of the reported visibility, using Koschmieder visibility theory. The sky-ground ratio is the ratio of the luminance of the horizonal sky to the inherent luminance of the target's background, with reference to a given viewing geometry. In practice, sky-ground ratio is seldom measured.

Sky-ground ratio is computed as an extremely complicated function of four variables: the background reflectance (R_b), sometimes called ground albedo; two angles (the dive angle and the elevation angle of the sun); and the visibility (from which the atmospheric extinction coefficient is estimated). Sky-ground ratio has the following general characteristics. It increases with decreasing albedo, or decreasing visibility, or decreasing sun angle. It is independent of sun angle under cloudy skies. It is nearly independent of sun azimuth angle, and it is largest when the dive angle is 10-30 degrees.

Finally, the last type of visual contrast concerning us is the threshold contrast (C_{TA}). It is that particular target-to-background apparent contrast at which 50 percent of observers will detect the target and 50 percent will not. For the human eye, the contrast threshold is approximately 0.02, and it is primarily a function of the size of the object seen in the field of view and the time spent looking at it. Each TV sensor will have its own threshold contrast which has been determined experimentally. A typical value of C_{TA} is 0.2. This value of C_{TA} along with C_0 is critical to our calculations of target acquisition range.

If we take equation 1-2 and replace apparent contrast (C_r) with threshold contrast (C_{TA}), then divide both sides by inherent contrast (C_0), we calculate a special value of contrast transmission (T_c), a value called threshold contrast transmittance (C'). This value is the simple ratio of C_{TA} to C_0:

$$C' = C_{TA}/C_0 \tag{1-3}$$

If for instance, our inherent contrast (C_0) is 1 (a white on black target) the value of C' and C_{TA} are equal (say 0.2). However, if C_0 is 0.5, then C' (0.4) is twice as large as C_{TA} (0.2). By writing equation 1-2 in this ratio form we are able to make transmittance charts that are useful for all combinations of target/backgrounds and TV sensors.

The charts in Appendix H contain plotted isopleths of C' (in tenths) given by range and altitude. By locating the appropriate C' at the given flight altitude, one can easily estimate the maximum target acquisition range. This value is the maximum acquisition range because the threshold contrast (the smallest one detectable) was used to calculate C'. Furthermore, the range is only valid for the target/background specified. Different inherent contrasts and, consequently, different C's would have to be calculated for other scenarios.

There are many assumptions, and thus limitations, in this method that the user of this publication should be aware of. First, the model assumes a two-layer atmosphere, the boundary of which is defined by the height of the surface mixing depth. Below this height the extinction coefficient is calculated from the surface visibility and is assumed constant through the layer. Above this height the extinction coefficient is set to a constant value representative of good visibility. Studies have shown that this type model is a good approximation to the real atmosphere in most, but not all, cases.

Secondly, basing extinction coefficient estimates on visibilities (visual range), probably the least objective of all observed or forecasted weather values, limits the accuracy of the model. Not only are visibilities difficult to forecast, there is no exact relationship between them and visual extinction coefficients. Furthermore, the model depends on two other forecast parameters: clouds and surface mixing depth. It goes without saying that the model results can be no better than the forecast values used in it.

Thirdly, the model gives acquisition ranges assuming there is a clear line-of-sight to the target. Of course, clouds will present a problem if they are located at or below flight level. Pilots usually know from experience how difficult it is to acquire a target in such a situation. Efforts to use probability of cloud-free-line-of-sight (CFLOS) estimates have not been too successful.

Fourthly, only some of the sensor and target features have been accounted for. Factors such as target contrast edge length and sensor scan line resolution can have important bearing on lock-on-range. Target features such as orientation and number of contrast edges, and shadows can also be important.

Finally, the calculations are concerned only with the hardware and environment, completely ignoring human factors. In reality, the pilot is in the loop using the TV sensor to detect a target. Many factors are involved in target recognition including target size, orientation, and background clutter. The acquisition range, computed using this publication, represents only that distance at which it is physically possible to first distinguish an object from its background. Therefore, the actual range at which acquisition is achieved is always less than than the true maximum acquisition range. This feature makes verification of the forecasted maximum range nearly impossible. Only cases of underestimating the maximum range can be identified, and even then, the amount of error is not known.

Although the model is limited, this method of estimating maximum acquisition range was determined useful by AWS personnel who supported the PAVE SPIKE visual system during test and evaluation flights of the Low Level Laser Guided Bomb (LLLGB). The RAND WETTA model has also been used to support the TV-Maverick precision guided munitions system during various phases of development and deployment.

For further information on this subject see Cottrell, et al., (1979), Breitling (1982), Duff (1972), or Huschke (1976).

CHAPTER 2

INSTRUCTIONS FOR COMPLETING A SAMPLE WORKSHEET

A worksheet (see sample, TV Sensor Target Acquisition Worksheet, on page 2-6) will be used to brief aircrews during mission planning. The instructions for completing this sample worksheet are given below. The sample worksheet has five sections described below in paragraphs A-E. Units may wish to modify this worksheet to meet their special needs.

A. MISSION DATA:

Mission ID: Self-explanatory.

Time on Target (Date/Time): Self-explanatory.

Flt Alt: ________(Ft AGL). Insert a flight altitude that is representative of the part of the mission during which the TV sensor will be used.

Target Location: Self-explanatory.

°Latitude: Self-explanatory.

°Longitude: Self-explanatory.

Sun Elevation: _______ (Degrees). Don't calculate this value for Bkn-Ovc cloud cover. The model always uses a value of 25 degrees for solar elevation angle in this situation. For Clr-Sct cloud cover, use Appendix A (identical to Appendix E of AWS/TR-79/002 and included in this user's manual for completeness) to find solar elevation angle for the location and time.

Target Type: Enter descriptions of the target (especially surface color and type) and its immediate background.

Target Reflectance (R_t): _______ See Appendix B for all values of R_t.

Background Type: Self-explanatory.

Background Reflectance (R_b): ______ Use Appendix B for all values of R_b for Bkn-Ovc cloud cover and for Clr-Sct cloud cover with sun elevation above 35°. Use Appendix C for all values of R_b in Clr-Sct cloud cover with sun elevation below 35°. For water use Appendix D.

B. SENSOR DATA FOR TV SYSTEM: Identify the type of TV sensor being used.

Threshold Illumination (I_T): _________ ft-candles. Threshold illumination will range from 0 to 100. Threshold values required in this section may be classified. These values will probably be available only from the customer.

Acquisition Threshold Contrast (C_{TA}): Acquisition threshold contrast will probably have a value near 0.2.

C. TARGET/BACKGROUND CONTRAST VALUES:

Inherent Contrast (C_0): Calculate using the target reflectance (R_t) and the background reflectance (R_b). For example, if R_t = .10 (a truck painted red) and R_b = .30 (concrete), then C_0 is equal to $|0.10 - 0.30|/0.30$ or 0.67. The second calculation uses the inherent contrast (C_0) and the acquisition threshold contrast (C_{TA}) to find the threshold contrast transmittance (C'). For instance, if C_{TA} is 0.20 and C_0 is 0.67, then C' is equal to 0.20/0.67 or 0.30.

D. PHYSICAL VARIABLES FOR CONTRAST TRANSMISSION CHARTS: In this section, the user selects, for each of five physical variables, a category which corresponds to the contrast transmission chart headings. There are 360 possible category combinations. Use worksheet entries and the forecast to select the category combination which defines the single chart needed out of the 360 available.

Total Target Cloud Cover Category: ______ (Clr - Sct, or Bkn - Ovc) Self-explanatory.

Background Reflectance Category: _______ percent (0-14, 15-49, or 50-100). Choose a category based on the general scene reflectance and not just on immediate background under the target. See section A of the worksheet and appendices B, C, and D.

Solar Elevation Angle Category: ______ degrees (0-10, 11-30, 31-55, or 56-90). For the Bkn-Ovc cloud cover cases, the model has already selected the 11-30 degree category. For Clr-Sct cloud cover, select the category which includes the solar elevation angle from section A of the worksheet.

Surface Mixing Depth Category: _______ feet (below 50, 1500, 3000, or 6000). Select the nearest value based on the forecast. For example, if the forecast value is 4,000 feet, choose the 3,000 foot category.

Surface Visibility Category: _______ miles (1, 3, 5, 7, 10, or 15). Choose the surface visibility category based on the forecast visibility for the target area at the mission time. There will be a chart in the Appendix H headed with the five values specified above. To find the correct chart, use Tables 1-4 as follows. First, find the correct table based on the values for cloud and reflectance. All the page numbers for the Bkn-Ovc cloud cases are given in Table 1. Tables 2-4 have the page numbers for the Clr-Sct cases. Table 2 has page numbers for background reflectances of 0-14 %. Tables 3 and 4 have page numbers for background reflectances of 15-49 % and 50-100%, respectively. The correct table for the sample worksheet is Table 3. Once the correct table has been found, locate the row corresponding to the values of solar elevation and surface mixing depth specified on the form. Next, find the column corresponding to the visibility value. Finally, at the intersection of the column and row will be the contrast transmission chart page number in Appendix H. For the sample worksheet the chart page number is H-185. After locating the chart, find the position on the chart corresponding to the C' and flight altitude values given in sections A and C. From this point, drop vertically down to the X axis and read off the maximum acquisition ground range, which for the sample case is 7,500 feet. In some cases, interpolation between isopleths may be needed. Remember the isopleths of C' are given as tenths.

E. ADDITIONAL CALCULATIONS: This section includes calculations that may or may not be needed. If the time over target is within an hour of sunrise/sunset, the absolute amount of visible light illumination becomes important. If the forecasted available lumination (FC) does not exceed the TV sensor threshold illumination (I_T) then target acquisition is unlikely. The mission planners may want to change the time-over-target or cancel the mission. Furthermore, the maximum acquisition ground range computed in step D must be changed to zero. The best procedure is to complete sections A and B first. Then, if the time-over-target is within an hour of sunrise/sunset, go directly to section E. To see if there is enough light, first find the sky illumination (f_c, which is a function of solar elevation and cloud type/amount) by using Appendix E.

If time on target is within an hour of sunrise/sunset, find Illumination (f_c): _________ ft-candles (Appendix E).

Available Lumination (FC): ________ft-candles, FC - R_{max} X f_c, Too little light if FC < I_T Light-Go _____ No-go _____. Find the available lumination (FC) by multiplying illumination (f_c), which is about 962 foot-candles in the example, by the larger of the target/background reflectances (R_{max}), 0.3 in the example. If there is enough light, the value of FC will be larger than sensor threshold illumination (I_T).

Shadows at low sun elevation angles may also be a problem. To compute the maximum shadow acquisition range, find the shadow inherent contrast (C_0) using Appendix F (about 0.61) and recompute the threshold contrast transmission (C') for the shadow using the same equation ratio described in section C (C' is about 0.33 for the example). Use the same contrast transmittance chart found previously (section D) and the same technique to find the maximum shadow acquisition ground range wihch is about 6,500 feet in our example.

Max Shadow Acquisition Ground Range _____ ft

Finally, the factor found in Appendix G (a function of sun elevation) multiplied by the target height will give the target shadow length.

If Total Cloud Cover Clr-Sct then Target Shadow Length = Target Height _____ X (Appendix G) _____.

TABLE 1. Chart Page Number Locator for all Bkn-Ovc Cases.

Background Reflectance	Solar Elevation	Surface Mixing Depth	Appendix II Page Number, Visibility (1	3	5	7	10	15)
0-14	25	Below 50	2	3	4	5	6	7
		1500	8	9	10	11	12	13
		3000	14	15	16	17	18	19
		6000	20	21	22	23	24	25
15-49	25	Below 50	26	27	28	29	30	31
		1500	32	33	34	35	36	37
		3000	38	39	40	41	42	43
		6000	44	45	46	47	48	49
50-100	25	Below 50	50	51	52	53	54	55
		1500	56	57	58	59	60	61
		3000	62	63	64	65	66	67
		6000	68	69	70	71	72	73

TABLE 2. Chart Page Number Locator for all Clr-Sct, 0-14 Percent Background Reflectance.

Background Reflectance	Solar Elevation	Surface Mixing Depth	Appendix II Page Number, Visibility (1	3	5	7	10	15)
0-14	0-10	Below 50	74	75	76	77	78	79
		1500	80	81	82	83	84	85
		3000	86	87	88	89	90	91
		6000	92	93	94	95	96	97
0-14	11-30	Below 50	98	99	100	101	102	103
		1500	104	105	106	107	108	109
		3000	110	111	112	113	114	115
		6000	116	117	118	119	120	121
0-14	31-55	Below 50	122	123	124	125	126	127
		1500	128	129	130	131	132	133
		3000	134	135	136	137	138	139
		6000	140	141	142	143	144	145
0-14	56-90	Below 50	146	147	148	149	150	151
		1500	152	153	154	155	156	157
		3000	158	159	160	161	162	163
		6000	164	165	166	167	168	169

TABLE 3. Chart Page Number Locator for all Clr-Sct, 15-49 Percent Background Reflectance.

Background Reflectance	Solar Elevation	Surface Mixing Depth	Appendix H Page Number (Visibility) (1	3	5	7	10	15)
15-49	0-10	Below 50	170	171	172	173	174	175
		1500	176	177	178	179	180	181
		3000	182	183	184	185	186	187
		6000	188	189	190	191	192	193
15-49	11-30	Below 50	194	195	196	197	198	199
		1500	200	201	202	203	204	205
		3000	206	207	208	209	210	211
		6000	212	213	214	215	216	217
15-49	31-55	Below 50	218	219	220	221	222	223
		1500	224	225	226	227	228	229
		3000	230	231	232	233	234	235
		6000	236	237	238	239	240	241
15-49	56-90	Below 50	242	243	244	245	246	247
		1500	248	249	250	251	252	253
		3000	254	255	256	257	258	259
		6000	260	261	262	263	264	265

TABLE 4. Chart Page Number Locator for all Clr-Sct, 50-100 Percent Background Reflectance.

Background Reflectance	Solar Elevation	Surface Mixing Depth	Appendix H Page Number (Visibility) (1	3	5	7	10	15)
50-100	0-10	Below 50	266	267	268	269	270	271
		1500	272	273	274	275	276	277
		3000	278	279	280	281	282	283
		6000	28[illegible]	285	286	287	288	289
50-100	11-30	Below 50	290	291	292	293	294	295
		1500	296	297	298	299	300	301
		3000	302	303	304	305	306	307
		6000	308	309	310	311	312	313
50-100	31-55	Below 50	314	315	316	317	318	319
		1500	320	321	322	323	324	325
		3000	326	327	328	329	330	331
		6000	332	333	334	335	336	337
50-100	56-90	Below 50	338	339	340	341	342	343
		1500	344	345	346	347	348	349
		3000	350	351	352	353	354	355
		6000	356	357	358	359	360	361

UNCLASSIFIED SAMPLE

TV SENSOR TARGET ACQUISITION WORKSHEET

(MAY BE CLASSIFIED WHEN FILLED IN WITH ACTUAL VALUES)

A. MISSION DATA

Mission ID: EXAMPLE-RUN Time on Target (Date/Time): Jan 1 1984/1700 L Flight Alt: 4,000 ft AGL

Target Location: Eglin AFB °Latitude: 30.52 N °Longitude: 86.52 W Sun Elevation: 9.57 degrees

Target Type: Red Truck Target Reflectance (R_t): 0.10 (See Appendix B)

Background Type: Concrete Background Reflectance (R_b): 0.30 (See Appendix B,C,D)

B. SENSOR DATA FOR TV SYSTEM: TV-Maverick

Threshold Illumination (I_T): 80 ft-candles, Acquisition Threshold Contrast (C_{TA}): 0.20

C. TARGET/BACKGROUND CONTRAST VALUES

Inherent Contrast (C_o): 0.67, $C_o = |R_t - R_b|/R_{max}$ (where R_{max} is the greater of R_t and R_b)

Threshold Contrast Transmittance (C'): 0.30, $C' = C_{TA}/C_o$

D. PHYSICAL VARIABLES FOR CONTRAST TRANSMISSION CHARTS

Total Cloud Cover over Target: Clr-Sct (Clr - Sct, or Bkn - Ovc)

Background Reflectance Category: 15-49 percent (0-14, 15-49, or 50-100)

Solar Elevation Angle Category: 0 -10 degrees (0-10, 11-30, 31-55, 56-90)

Surface Mixing Depth Category: 3,000 feet (below 50, 1500, 3000, or 6000)

Surface Visibility Category: 7 miles (1, 3, 5, 7, 10, or 15)

Go to corresponding chart in Appendix H using flight alt and C' find Max Acquisition Ground Range: 7,500 ft

E. ADDITIONAL CALCULATIONS

If time on target within 60 minutes of sunrise/sunset find Illumination (f_c): 962 ft-candles (Appendix E)

Available Lumination (FC): 289 ft-candles, $FC = R_{x}$ X f_c, Too little light if FC < I_T Light-Go √ No-go ____

For Shadow calculation replace C_o with value in Appendix F, recompute C' and repeat Step D. Max Shadow Acqu.G.R. 6,500 ft

If Total Cloud Cover Clr-Sct then Target Shadow Length = Target Height 10 ft X (Appendix G) 5.7 = 57.ft.

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Appendix A

COMPUTATION OF SOLAR ELEVATION ANGLE

A-1 Introduction. The following graphical method for computing solar elevation angle (degrees above horizon) is based on Table 169 and equation (1) of Table 170 of List (1966). Calculations consider mean solar time only.

A-2 Input Data. Data required to compute solar elevation angle (SA) are:

Date (Greenwich Mean Time (GMT))

Time (Greenwich Mean Time (GMT))

Latitude (ϕ)

Longitude

A-3 Procedure (use worksheet in paragraph A-5).

a. Enter Figure A-1 with date to find solar declination (δ). Follow date down graph to curve. From intersection with curve, follow graph to left to solar declination. Record solar declination on worksheet.

b. Enter Figure A-2 with the time and longitude to find local hour angle (A).

(1) Enter Figure A-2a with the GMT time and follow to right to curve. This intersection relates GMT time to the Greenwich hour angle (read values at upper edge of figure). From intersection with curve, follow graph down to lower graph edge.

(2) Using the Greenwich hour angle and the longitude, enter Figure A-2b to find local hour angle (A). Follow the Greenwich hour angle down the graph to the curve representing the longitude. From the intersection with the curve, move left along the graph until the local hour angle is determined. Record local hour angle on worksheet.

c. Enter Figure A-3 with solar declination, local hour angle, and latitude to find solar elevation angle.

(1) Figure A-3a produces two values. The curve labeled sin δ is used with Figure A-3b while the curve labeled cos δ is used with Figure A-3c. Enter Figure A-3a from the left with solar declination and intersect the curve labeled sin δ. Record value of sin δ (value at top of graph). With the same solar declination, intersect the curve labeled cos δ. Record value of cos δ (value at bottom of graph).

(2) With the value of sin δ from Figure A-3a, enter Figure A-3b and move upward until the appropriate latitude curve is intersected (interpolate linearly if necessary). Record value of sin ϕ sin δ.

(3) With the value of cos δ from Figure A-3a, enter Figure A-3c and move downward until the appropriate latitude curve is intersected (interpolate linearly if necessary). Use the determined value of cos ϕ cos δ and move to the right into Figure A-3d until the local hour angle is intersected. Record value of cos ϕ cos δ cos A.

(4) Finally, using the value just determined and the result of Figure A-3b (sin ϕ sin δ), enter Figure A-3e to find solar elevation angle (SA). Record solar elevation angle (SA).

A-4 Comments. More accurate values of solar elevation angle can be calculated using the Air Almanac with List's Equation (1). The true local hour angle would be calculated in lieu of the mean local hour angle in order to achieve better accuracy. However, for the purpose intended in this text, the described technique is generally adequate. In most daylight cases, the calculation of solar elevation angle to later infer solar illumination is probably unnecessary since adequate illumination will be available for most TV systems. However, near sunrise and sunset, and under extremely heavy cloudiness calculations of solar elevation should be considered.

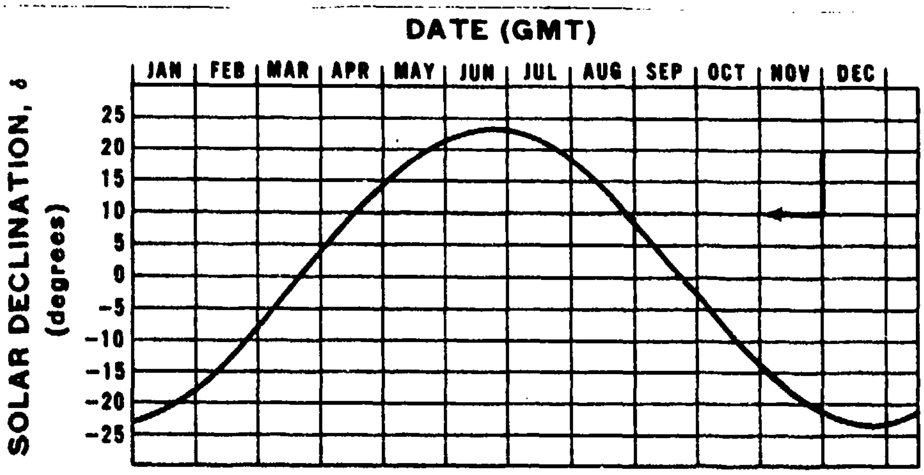


Figure A-1. Solar Declination as a Function of Data (Greenwich Mean Time).

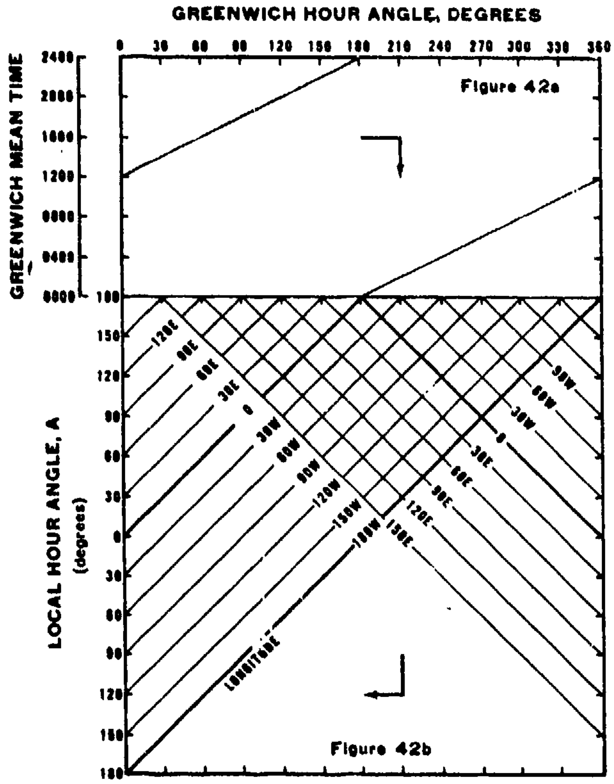


Figure A-2. Local Hour Angle as a Function of Greenwich Mean Time and Longitude.

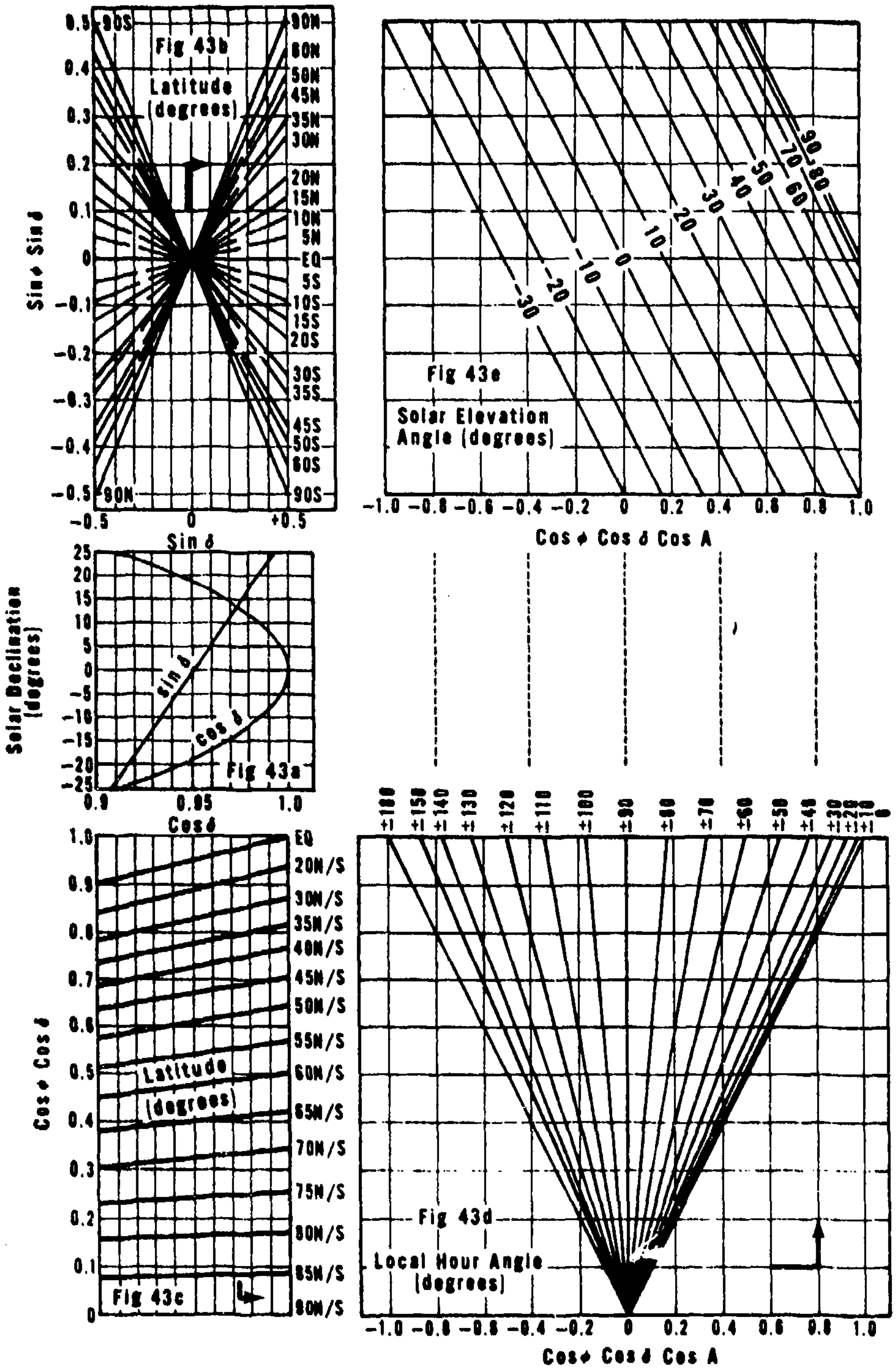


Figure A-3. Solar Elevation Angle as a Function of Solar Declination, Latitude, and Local Hour Angle.

A-5 Worksheet to Compute Solar Elevation Angle (SA).

INPUT DATA

Date (GMT) ____________

Time (GMT) ____________

Latitude (ϕ) ____________

Longitude ____________

PROCEDURE

a. Enter Figure A-1 with GMT date to find solar declination.

Solar declination (δ) ____________ (degrees).

b. Enter Figure A-2 with GMT time and longitude to find local hour angle (A).

Local hour angle (A) ____________ (degrees).

c. Enter Figure A-3 with solar declination (δ), local hour angle (A) and latitude (ϕ) to find solar elevation angle.

(1) From Figure A-3a,

$\sin \delta =$ ____________, and $\cos \delta =$ ____________.

(2) From Figure A-3b,

$\sin \phi \sin \delta =$ ____________.

(3) From Figures A-3c and A-3d,

$\cos \phi \cos \delta \cos A =$ ____________.

(4) From Figure A-3e, the solar elevation angle (SA) = ____________ (degrees).

A-6 Example of Completed Worksheet

A-5 Worksheet to Compute Solar Elevation Angle (SA).

INPUT DATA

Date (GMT) 15 Jun 78

Time (GMT) 1000Z

Latitude (ϕ) 48°N.

Longitude 10°E

PROCEDURE

a. Enter Figure A-1 with GMT date to find solar declination.

Solar declination (δ) + 23.3 (degrees).

b. Enter Figure A-2 with GMT time and longitude to find local hour angle (A).

Local hour angle (A) 20 (degrees).

c. Enter Figure A-3 with solar declination (δ), local hour angle (A) and latitude (ϕ) to find solar elevation angle.

(1) From Figure A-3a,

$\sin \delta =$ 0.4, and $\cos \delta =$ 0.92.

(2) From Figure A-3b,

$\sin \phi \sin \delta =$ 0.295.

(3) From Figures A-3c and A-3d,

$\cos \phi \cos \delta \cos A =$ 0.58.

(4) From Figure A-3e, the solar elevation angle (SA) = 61 (degrees).

REFERENCES:

AWS/TR-79/00.., ELECTRO-OPTICAL HANDBOOK, VOL I, WEATHER SUPPORT FOR PRECISION GUIDED MUNITIONS, MAY 1979, APPENDIX E.

LIST, R. J., ED., 1966: SMITHSONIAN METEOROLOGICAL TABLES, SIXTH REVISED EDITION, SMITHSONIAN INSTITUTION, WASHINGTON, DC.

Appendix B

VISIBLE WAVELENGTH REFLECTANCE VALUES - HIGH SUN

(All R_t values, R_b values for Clr-Sct cloud cover with sun elevation above 35 degrees, or all Bkn-Ovc cloud cases)

BARE SOILS	REFLECTANCE
MUD	.05
DRY LOAM	.16
WET LOAM	.09
DARK, DRY	.13
DARK, WET	.08
DARK, DRY (PLOWED)	.08
DARK, WET (PLOWED)	.04
LIGHT, DRY	.18
LIGHT, WET	.10
LIGHT, DRY (PLOWED)	.16
LIGHT, WET (PLOWED)	.06
CLAY, DRY	.23
CLAY, WET	.16
RED SOIL/EARTH	.12
DIRT ROAD, WET	.25
DIRT ROAD, WET	.18
CLAY ROAD, DRY	.30
CLAY ROAD, WET	.20
SANDY SOIL, DRY	.25
SANDY SOIL, WET	.18
SANDY SOIL, DRY (PLOWED)	.20
SANDY SOIL, WET (PLOWED)	.11
SAND (AVERAGE)	.27
SAND, DRY	.40
SAND, WET	.20
DESERT	.30
DESERT SAND	.35
WHITE SAND	.55

BARE, HARD/PREPARED SURFACES	REFLECTANCE
BLACK ASPHALT RUNWAY	.03
DARK VOLCANIC ROCK	.05
ASPHALT	.10
BLACK TOP ROAD	.15
WEATHERED ASPHALT ROAD	.19
CONCRETE	.30
STONE	.30
ROCK, DRY	.35
ROCK, WET	.20

VEGETATION	REFLECTANCE
VEGETATION (AVERAGE)	.15
GROUND W/LITTLE VEGETATION	.09
TALL GRASS, GROWING	.18
TALL GRASS, DORMANT	.13
MOWED GRASS, GROWING	.26
MOWED GRASS, DORMANT	.19
DECIDUOUS TREES, GROWING	.18
DECIDUOUS TREES, DORMANT	.12
CONIFEROUS TREES, GROWING	.14
CONIFEROUS TREES, DORMANT	.12
CORN, GREEN	.18
RICE	.18
WHEAT, LIGHT-GREEN	.13
WHEAT, LIGHT-YELLOW	.21

PAINTED SURFACES	REFLECTANCE
BLACK	.03
OLIVE DRAB (TANK)	.11
DARK GREEN	.08
SEA BLUE	.08
FOREST GREEN	.09
EARTH BROWN	.10
RED	.10
SEA GRAY	.11
SLATE GRAY	.11
OCEAN GRAY	.15
FIELD DRAB	.15
HAZE GRAY	.25
BLUE GRAY	.26
EARTH YELLOW	.43
SKY GRAY	.50
WHITE	.80
ALUMINUM PAINT	.80
TAN PAINTED STEEL	.50
NO PAINT/RUST	.06

CONSTRUCTION MATERIALS	REFLECTANCE
RED BRICK	.35
TAR PAPER ROOF	.04
WEATHERED STEEL	.05
BARE WOOD	.10
OLIVE DRAB CANVAS	.12
OLIVE DRAB BURLAP	.13
WEATHERED WOOD	.14
ASBESTOS SHEETS	.20
STAINLESS STEEL	.50
ALUMINUM	.85

SNOW	REFLECTANCE
FRESH	.85
DENSE	.75
MOIST	.65
OLD	.55
MELTING	.35

ICE	
WHITE	.75
GREY	.60
SNOW & ICE	.65
DARK GLAZE	.10

Appendix C

VISIBLE WAVELENGTH REFLECTANCE VALUES - LOW SUN

Visible Wavelength Reflectance Values (R_b) (Clr-Sct cloud cover with sun elevation below 35°)

	SUN ELEVATION ANGLE (DEGREES)		
SURFACE	10	20	30
Dark Soil, Dry	.22	.16	.14
Dark Soil, Wet	.17	.11	.09
Light Soil, Dry	.34	.29	.21
Light Soil, Wet	.26	.21	.13
Sandy Soil, Dry	.34	.30	.27
Sandy Soil, Wet	.27	.23	.20
Vegetation (Average)	.25	.22	.19
Tall Grass, Growing	.28	.25	.22

At the time of publication, the change of visible wavelength reflectance with varying sun elevation angle was available for the limited number of surface types listed above. For surfaces not listed here, use R_b values from Appendix B even though sun elevation angle is below 35°.

Appendix D

VISIBLE WAVELENGTH REFLECTANCE VALUES - WATER

Visible Wavelength Reflectance Values, for Water (Winds 2-10 mph at 10 meters, for higher winds decrease values slightly)

SUN ELEVATION ANGLE (DEGREES)	CLOUD CLR-SCT	COVER BKN-OVC
5	.26	.14
10	.25	.14
15	.19	.11
20	.13	.09
30	.08	.07
40	.06	.07
50	.05	.06
60	.04	.06
70	.04	.06

REFERENCES for Appendices B, C, and D:

AWS/TR-79/002, ELECTRO-OPTICAL HANDBOOK, VOL I, WEATHER SUPPORT FOR PRECISION GUIDED MUNITIONS, MAY 79, TABLE 8.

SYSTEMS AND APPLIED SCIENCES CORPORATION, INSOLATION MODEL USERS GUIDE (UNDATED), TABLE 2.

TECHNICAL REPORT EL-81-2, THERMAL MODELING OF TERRAIN SURFACE ELEMENTS, MARCH 1981, TABLE B1. (NIGHT VISION AND ELECTRO-OPTICS LABORATORY, FORT BELVOIR, VA).

RADIATION PROCESSES IN THE ATMOSPHERE, WMO-NO. 309, 1972, TABLES 2.1, 2.2, 2.3, 2.10, 2.15, Figures 2.1, 2.2

Appendix E

SOLAR ILLUMINATION VS. SOLAR ELEVATION AND CLOUD TYPE

SOLAR ELEVATION (DEGREES)	CLEAR TO SCT (ANY TYPE CLD)	BROKEN-OVERCAST CLOUD (BY TYPE) (Solar Illumination in Foot-candles)							
		Ci	Cs	Ac	As	Sc	St	Ns	Fog
-9	.01	.008	.007	.005	.004	.003	.003	.002	.002
-8	.03	.024	.02	.01	.01	.009	.008	.007	.006
-7	.1	.08	.07	.05	.04	.03	.03	.02	.02
-6	.3	.24	.2	.14	.12	.09	.08	.07	.06
-5	1.	.80	.65	.45	.41	.29	.25	.24	.19
-4	3.	2.4	2.0	1.4	1.2	.87	.75	.72	.57
-3	8.	6.4	5.2	3.6	3.3	2.3	2.0	1.9	1.5
-2	18.	14.4	11.7	8.1	7.4	5.2	4.5	4.3	3.4
-1	37.	29.6	24.1	16.7	15.2	10.7	9.3	8.9	7.0
0	68.	54.4	44.2	30.6	27.9	19.7	17.0	16.3	12.9
1	116.	92.8	75.4	52.2	47.6	33.6	29.0	27.8	22.0
2	183.	146.	119.	82.4	75.0	53.1	45.8	43.9	34.8
3	263.	210.	171.	118.	108.	76.3	65.8	63.1	50.0
4	350.	280.	228.	158.	144.	102.	87.5	84.0	66.5
5	442.	354.	287.	199.	181.	128.	111.	106.	84.0
6	543.	434.	353.	244.	223.	157.	136.	130.	103.
7	653.	522.	424.	294.	268.	189.	163.	157.	124.
8	763.	610.	496.	343.	313.	221.	191.	183.	145.
9	882.	706.	573.	397.	362.	256.	221.	212.	168.
10	1015.	812.	660.	457.	416.	294.	254.	244.	193.
11	1150.	920.	748.	518.	472.	333.	288.	276.	219.
12	1290.	1032.	839.	581.	529.	374.	323.	310.	245.
13	1430.	1144.	930.	644.	586.	415.	358.	343.	272.
14	1575.	1260.	1024.	709.	646.	457.	394.	378.	299.
15	1725.	1380.	1121.	776.	707.	500.	431.	414.	328.

REFERENCE: AWS/TR-79/002, ELECTRO-OPTICAL HANDBOOK, VOL I, WEATHER SUPPORT FOR PRECISION GUIDED MUNITIONS, MAY 79, TABLES 6 AND 7.

Appendix F

TARGET SHADOW INHERENT CONTRAST

RELATIVELY CLEAR ATMOSPHERE: VISIBILITIES ≥ 6.2 MILES (10 KM)

SOLAR ELEVATION	GENERAL BACKGROUND REFLECTANCE (R_b) .1	.3	.6	.8
0°	.55	.54	.52	.51
30°	.78	.76	.74	.72
60°	.86	.84	.81	.79
90°	.88	.85	.81	.80

RELATIVELY TURBID ATMOSPHERE: VISIBILITIES < 6.2 MILES (10 KM)

SOLAR ELEVATION	GENERAL BACKGROUND REFLECTANCE (R_b) .1	.3	.6	.8
0°	.16	.15	.14	.13
30°	.50	.47	.45	.43
60°	.65	.61	.59	.57
90°	.68	.66	.62	.59

REFERENCE: AFGL/OPI LETTER, AWS/DOOF, INQUIRY ON SHADOWS AS A FUNCTION OF SUNLIGHT, 12 JUNE 1981.

Appendix G

TARGET SHADOW LENGTH FACTORS

SOLAR ELEVATION ANGLE (SA), DEGREES	SHADOW LENGTH EQUALS TARGET HEIGHT TIMES*
1	57.3
2	28.6
3	19.1
4	14.3
5	11.4
6	9.5
8	7.1
10	5.7
15	3.7
20	2.7
25	2.1
30	1.7
35	1.4
40	1.2
45	1.0
50	.8
60	.6
70	.4
80	.2
85	.1
90	.0

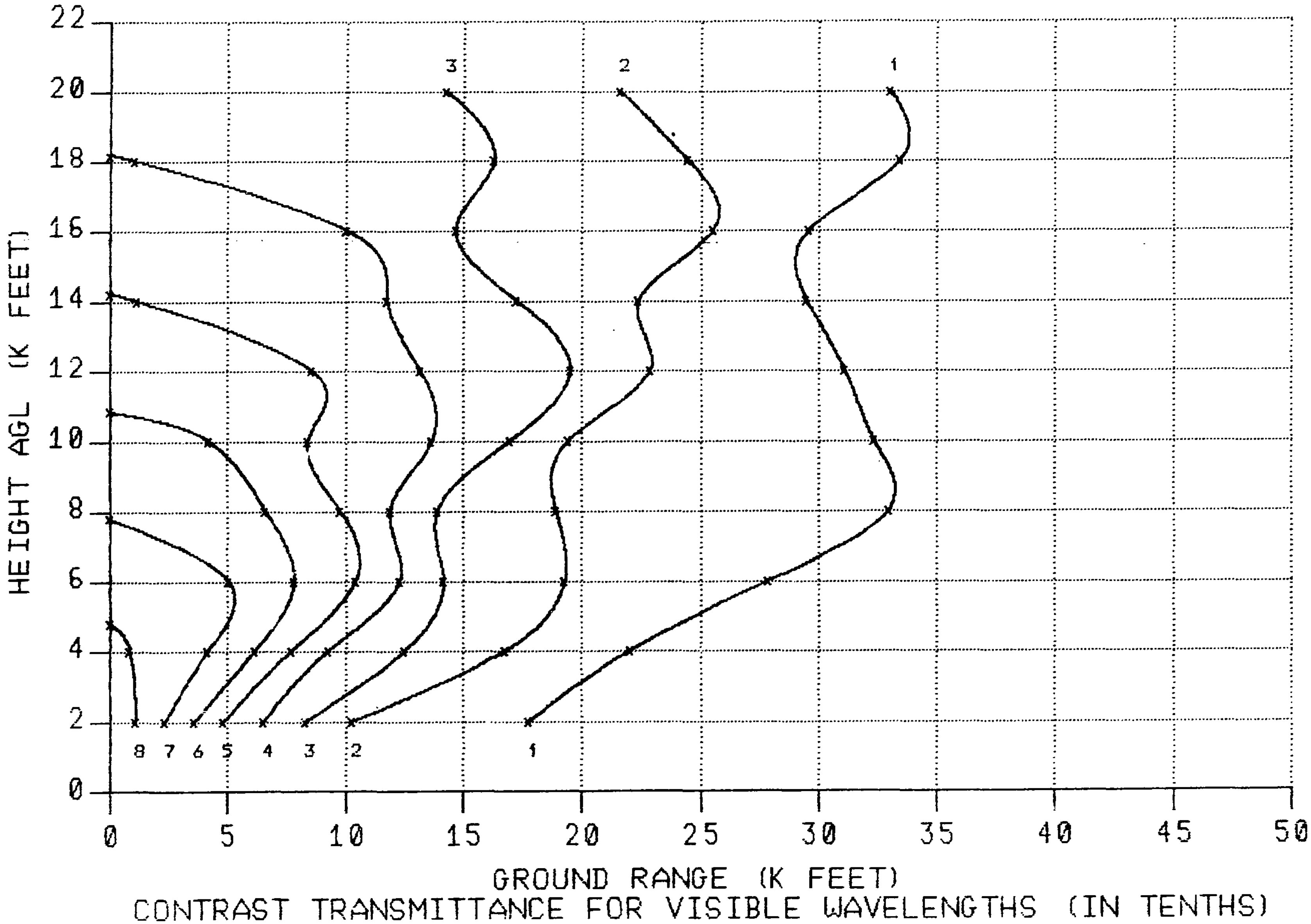
* FACTOR = TAN(90-SA)

Appendix H

CHARTS

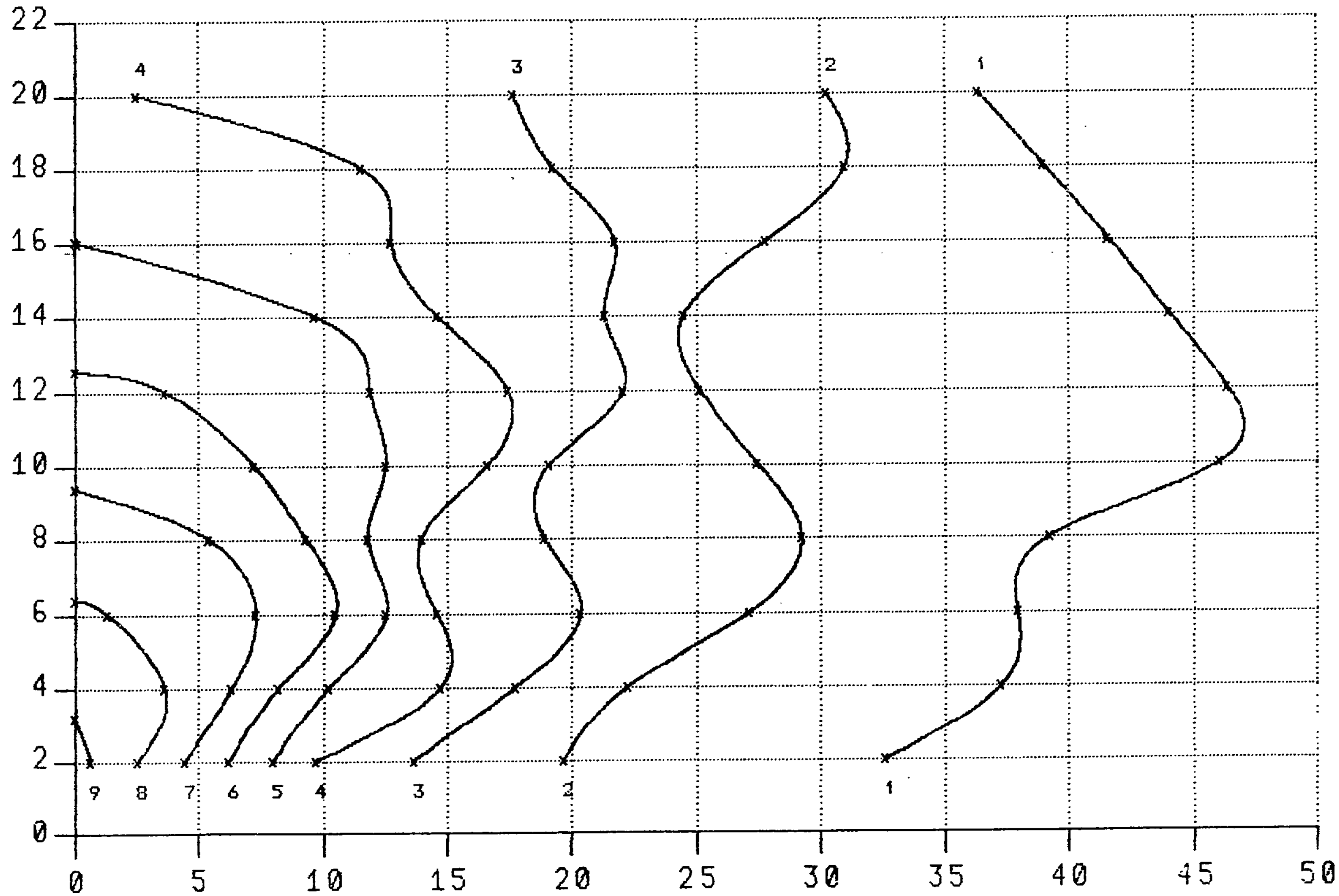
CLOUD COVER: BKN-OVC

BKGND. REFLECTANCE: 00 TO 14 PERCENT
SOLAR ELEV. ANGLE : SET @ 25 DEGREE
SURFACE VISIBILITY: 1 MILE (1.6 KM)
MIXING LYR. DEPTH : BELOW 50 FEET



CLOUD COVER: BKN-OVC

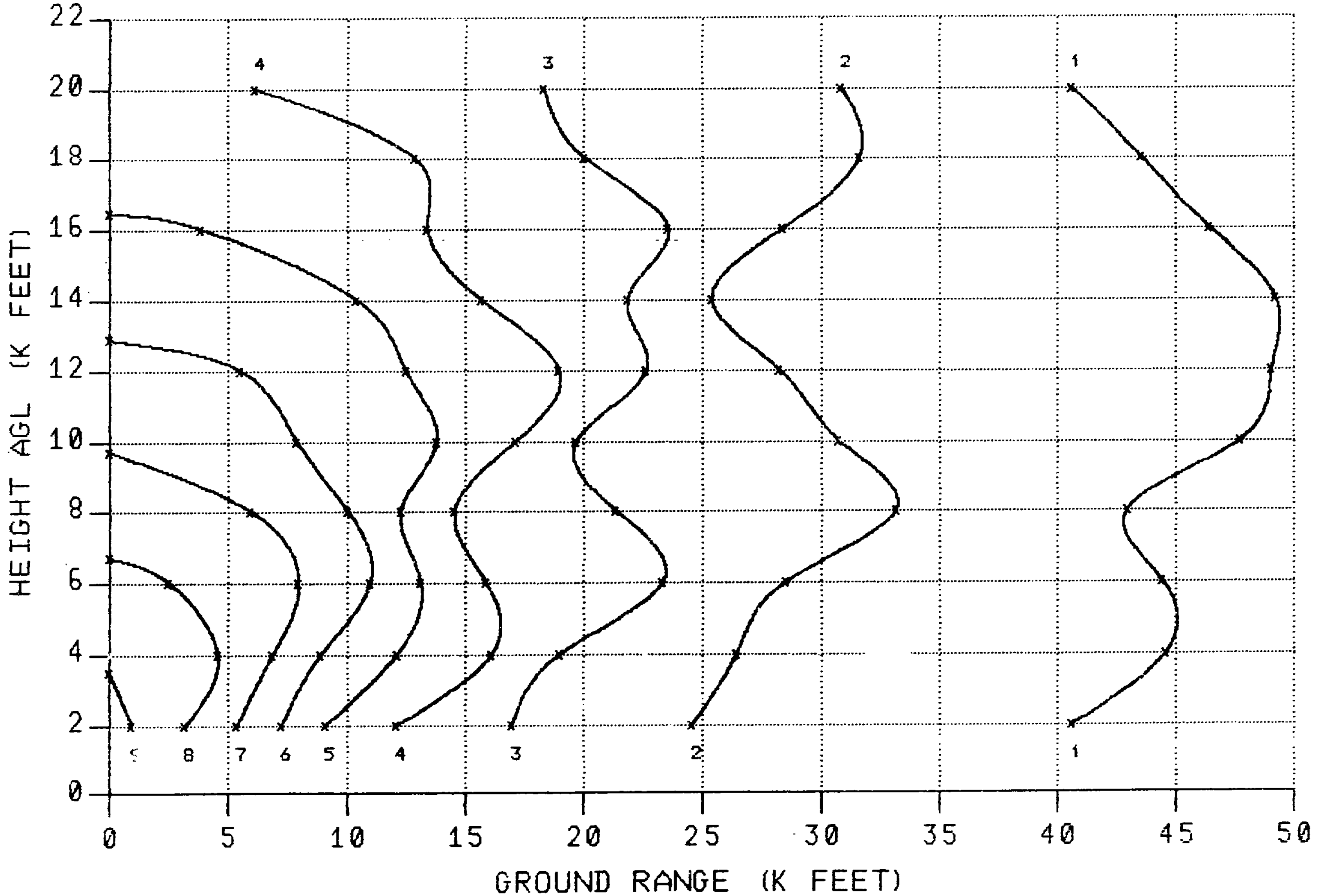
BKGND. REFLECTANCE: 00 TO 14 PERCENT
SOLAR ELEV. ANGLE : SET @ 25 DEGREE
SURFACE VISIBILITY: 3 MILES (4.8 KM)
MIXING LYR. DEPTH : BELOW 50 FEET



GROUND RANGE (K FEET)
CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

CLOUD COVER: BKN-OVC

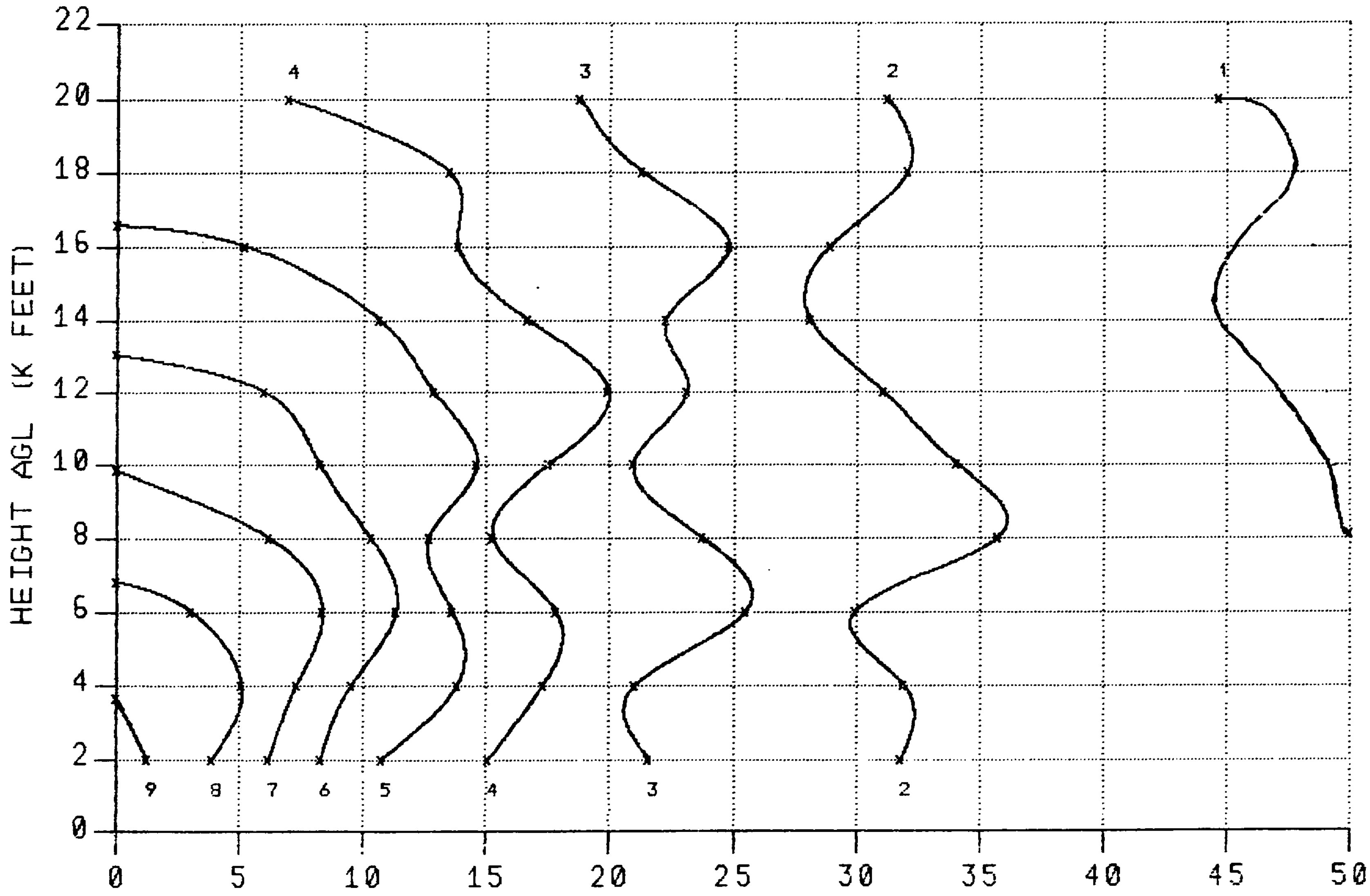
BKGND. REFLECTANCE: 00 TO 14 PERCENT
SOLAR ELEV. ANGLE : SET @ 25 DEGREE
SURFACE VISIBILITY: 5 MILES (8.0 KM)
MIXING LYR. DEPTH : BELOW 50 FEET



CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

CLOUD COVER: BKN-OVC

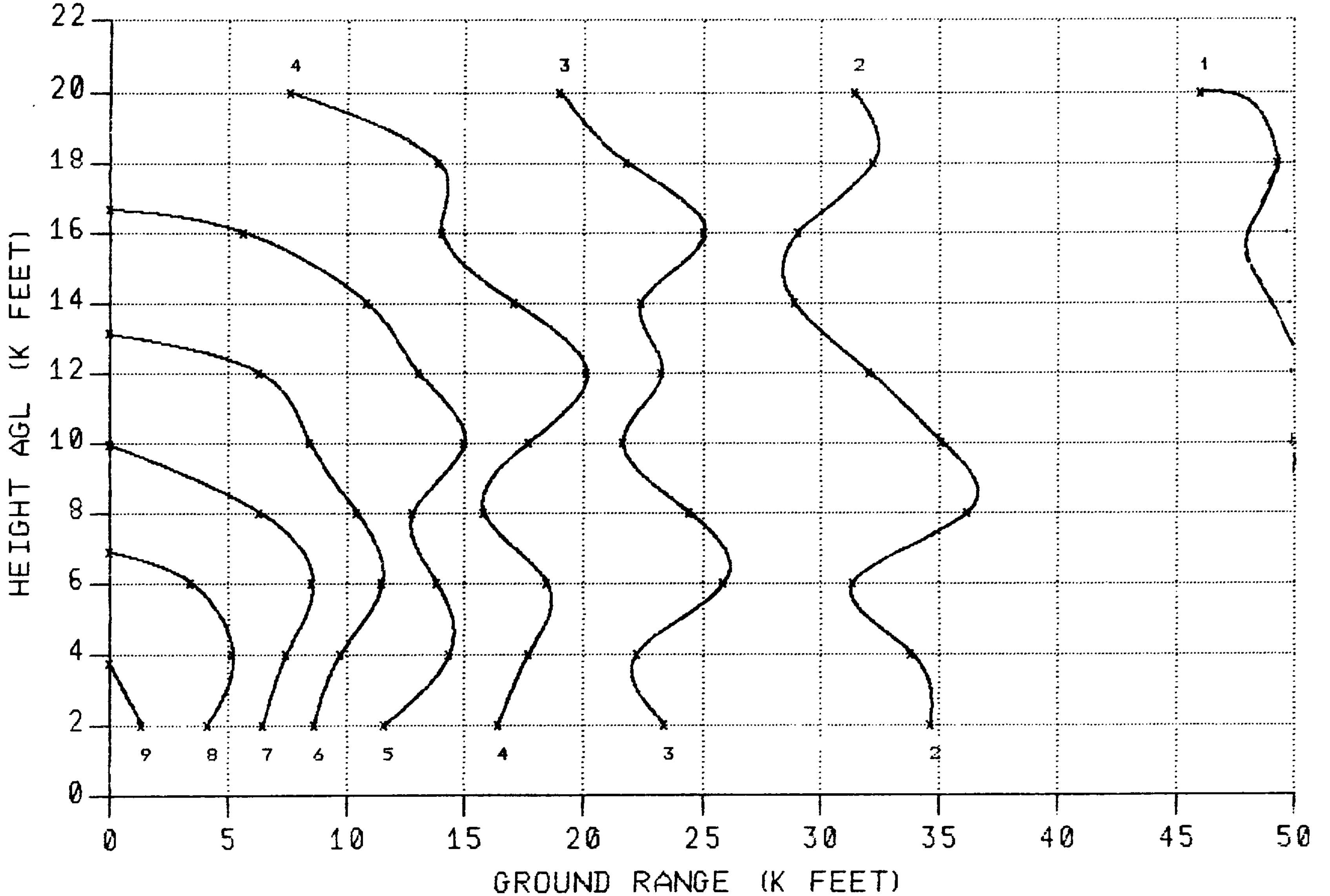
BKGND. REFLECTANCE: 00 TO 14 PERCENT
SOLAR ELEV. ANGLE : SET @ 25 DEGREE
SURFACE VISIBILITY: 7 MILES (11.3 KM)
MIXING LYR. DEPTH : BELOW 50 FEET



GROUND RANGE (K FEET)
CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

CLOUD COVER: BKN-OVC

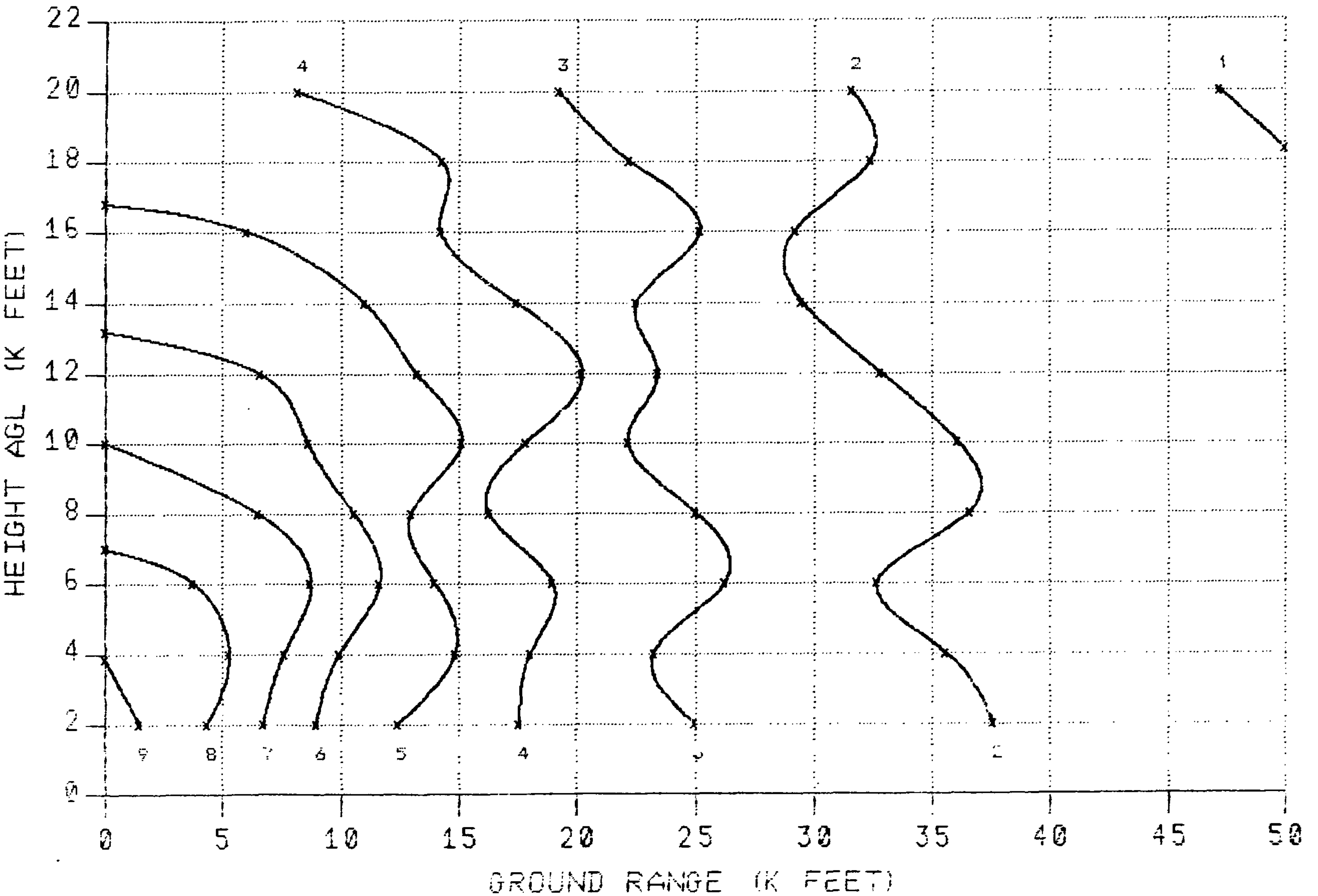
BKGND. REFLECTANCE: 00 TO 14 PERCENT
SOLAR ELEV. ANGLE : SET @ 25 DEGREE
SURFACE VISIBILITY: 10 MILES (16.1 KM)
MIXING LYR. DEPTH : BELOW 50 FEET



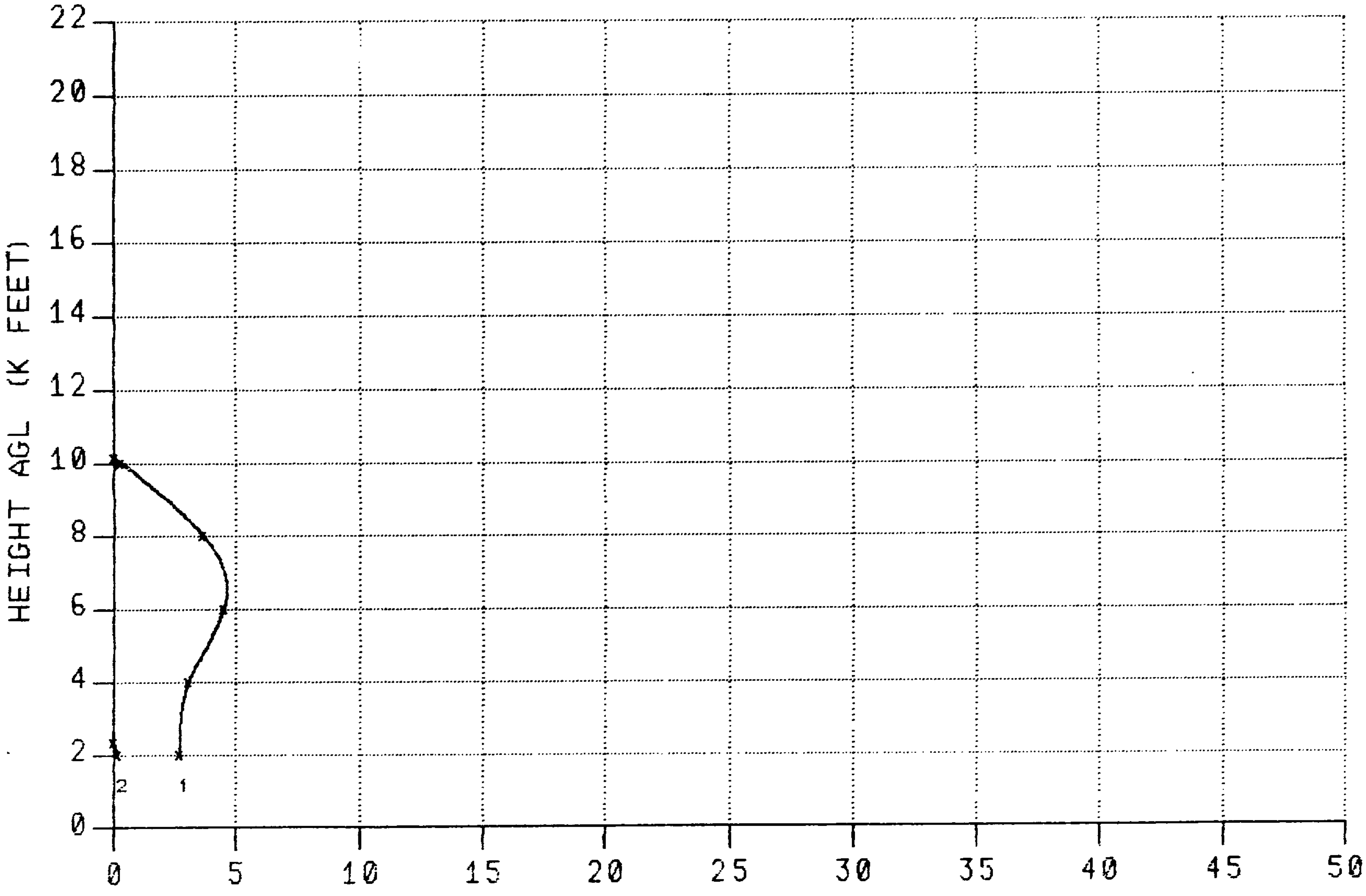
CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

CLOUD COVER: BKN-OVC

BKGND. REFLECTANCE: 00 TO 14 PERCENT
SOLAR ELEV. ANGLE : SET @ 25 DEGREE
SURFACE VISIBILITY: 15 MILES (24.1 KM)
MIXING LYR. DEPTH : BELOW 50 FEET



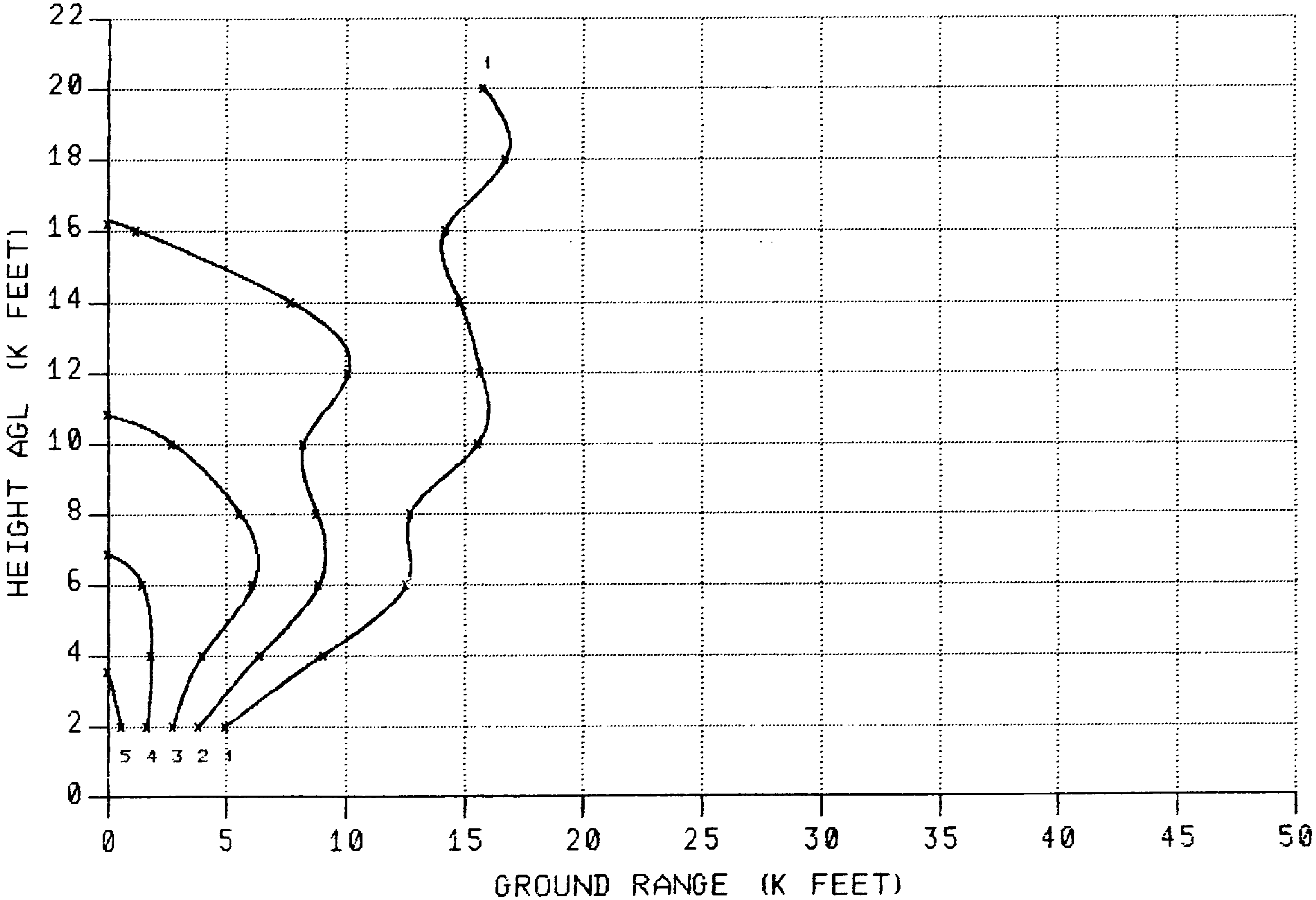
CLOUD COVER: BKN-OVC
BKGND. REFLECTANCE: 00 TO 14 PERCENT
SOLAR ELEV. ANGLE : SET @ 25 DEGREE
SURFACE VISIBILITY: 1 MILE (1.6 KM)
MIXING LYR. DEPTH : 1500 FEET



CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

CLOUD COVER: BKN-OVC

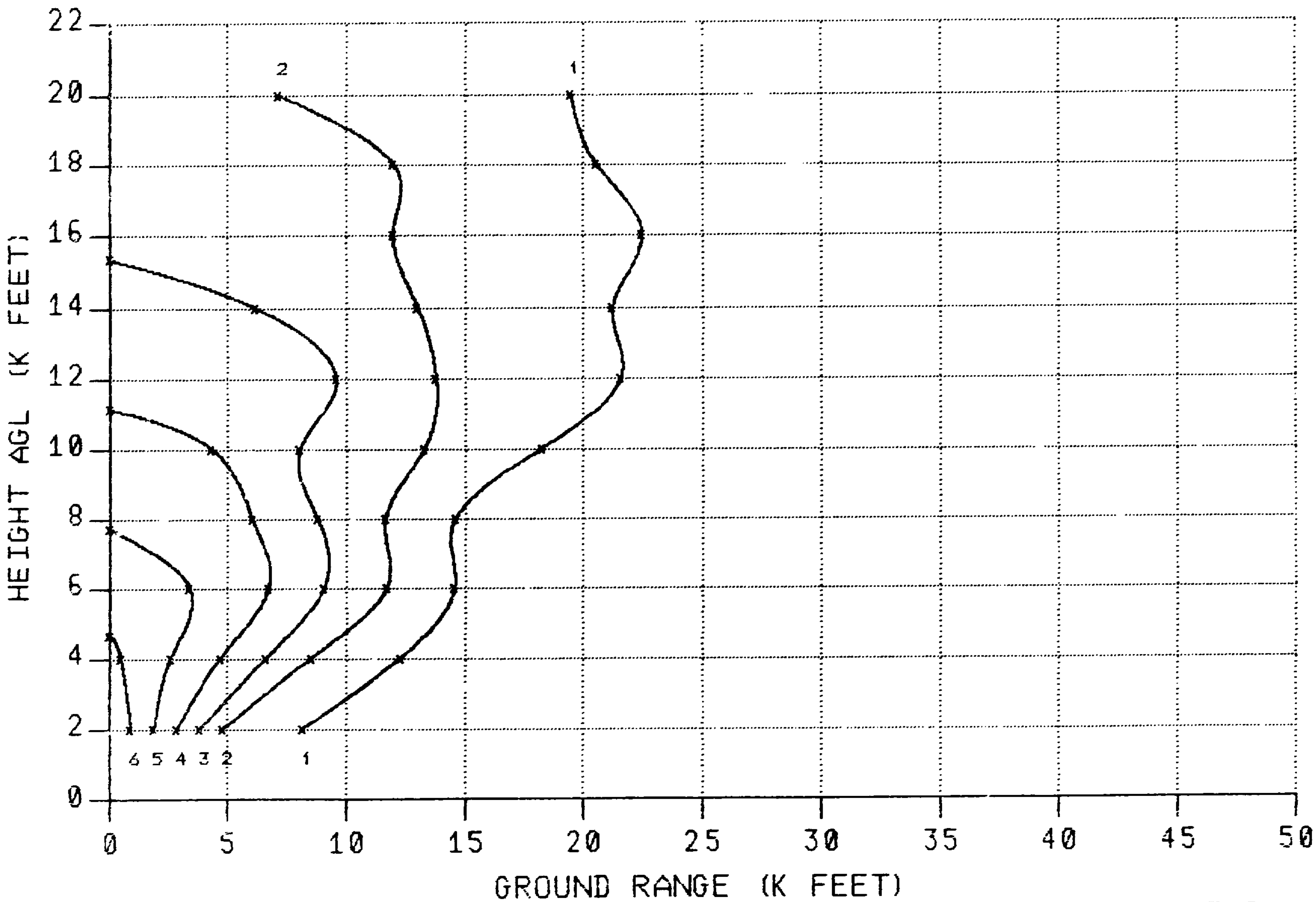
BKGND. REFLECTANCE: 00 TO 14 PERCENT
SOLAR ELEV. ANGLE : SET @ 25 DEGREE
SURFACE VISIBILITY: 3 MILES (4.8 KM)
MIXING LYR. DEPTH : 1500 FEET



CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

CLOUD COVER: BKN-OVC

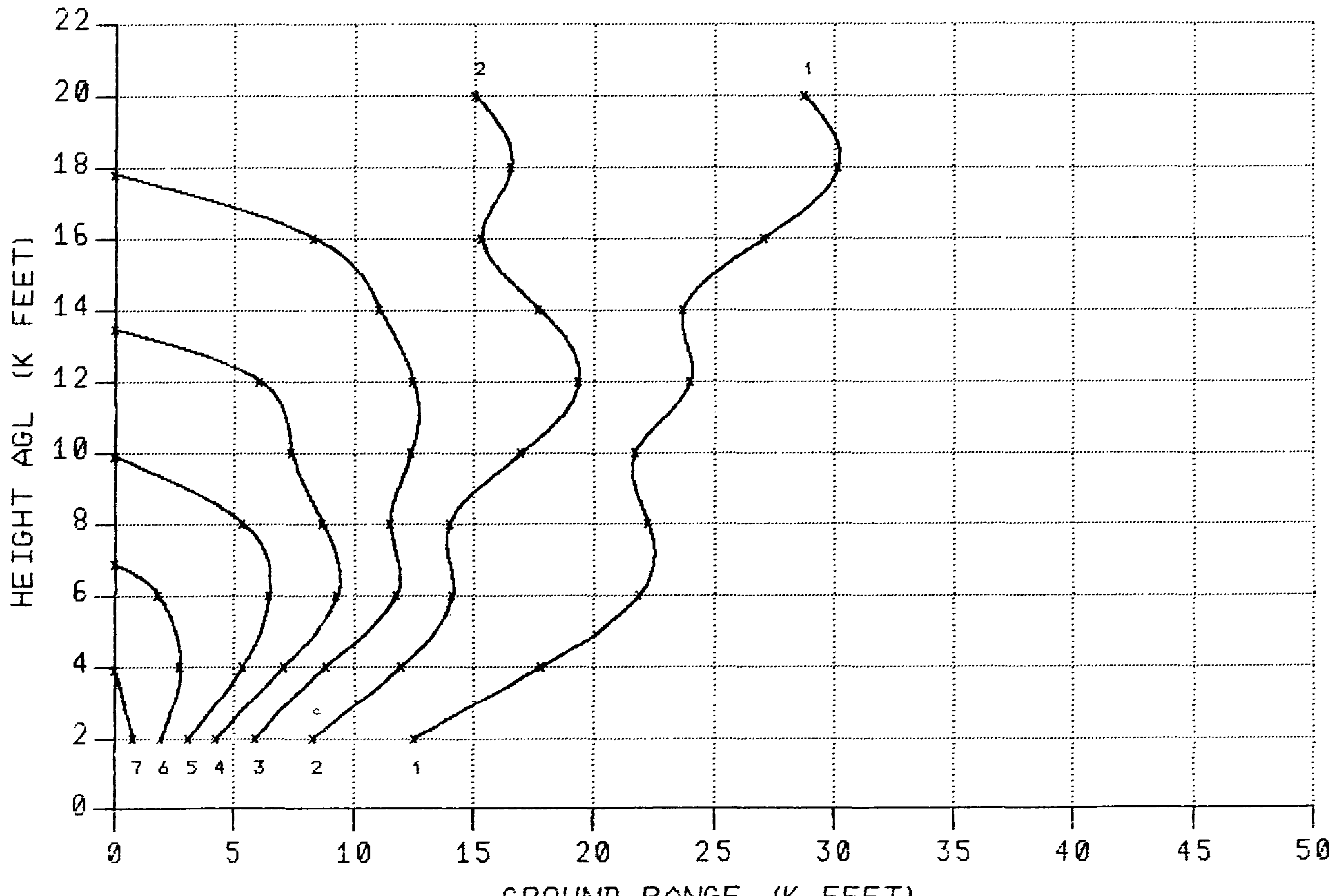
BKGND. REFLECTANCE: 00 TO 14 PERCENT
SOLAR ELEV. ANGLE : SET @ 25 DEGREE
SURFACE VISIBILITY: 5 MILES (8.0 KM)
MIXING LYR. DEPTH : 1500 FEET



CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

CLOUD COVER: BKN-OVC

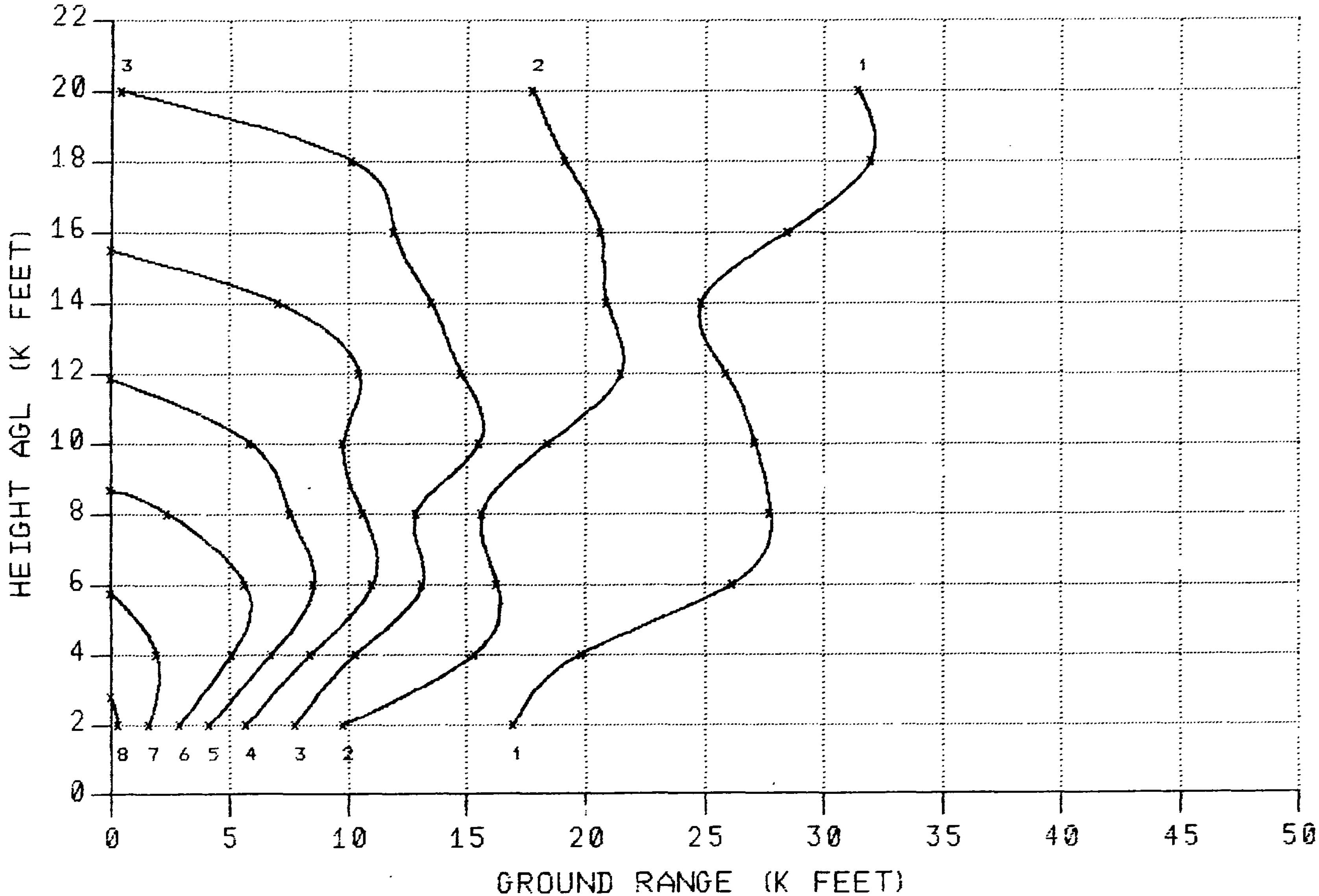
BKGND. REFLECTANCE: 00 TO 14 PERCENT
SOLAR ELEV. ANGLE : SET @ 25 DEGREE
SURFACE VISIBILITY: 7 MILES (11.3 KM)
MIXING LYR. DEPTH : 1500 FEET



CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

CLOUD COVER: BKN-OVC

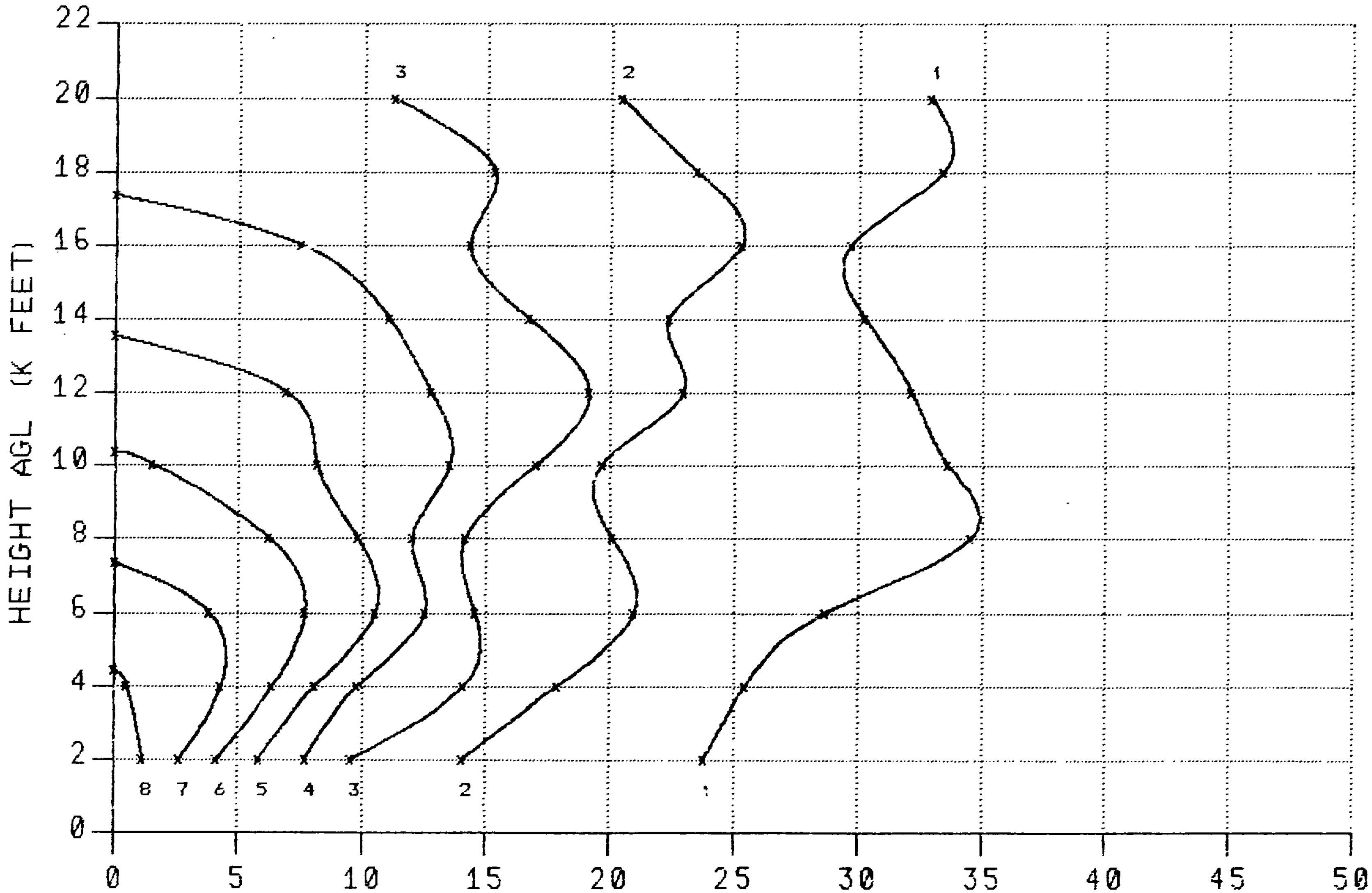
BKGND. REFLECTANCE: 00 TO 14 PERCENT
SOLAR ELEV. ANGLE : SET @ 25 DEGREE
SURFACE VISIBILITY: 10 MILES (16.1 KM)
MIXING LYR. DEPTH : 1500 FEET



CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

CLOUD COVER: BKN-OVC

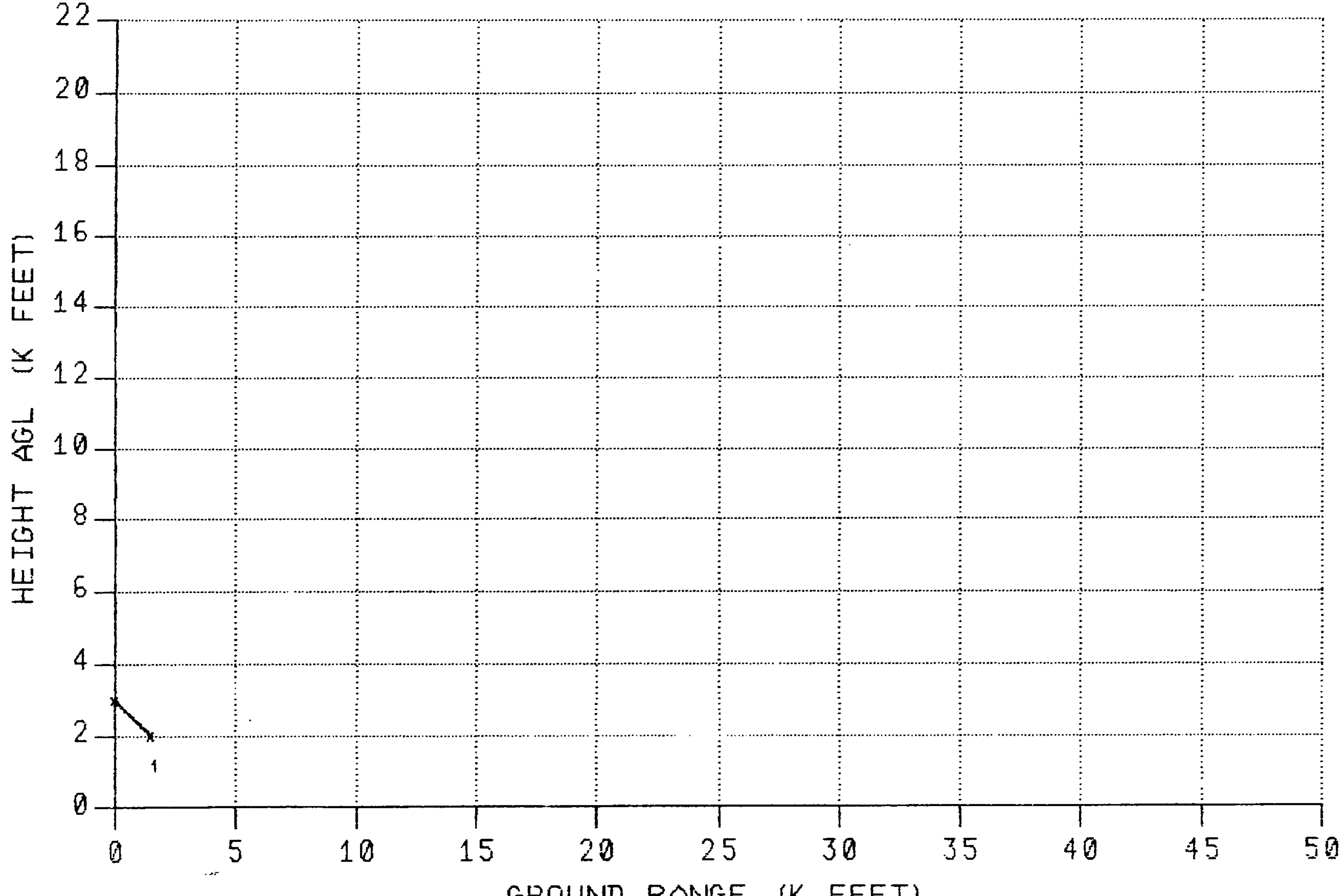
BKGND. REFLECTANCE: 00 TO 14 PERCENT
SOLAR ELEV. ANGLE : SET @ 25 DEGREE
SURFACE VISIBILITY: 15 MILES (24.1 KM)
MIXING LYR. DEPTH : 1500 FEET



GROUND RANGE (K FEET)
CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

CLOUD COVER: BKN-OVC

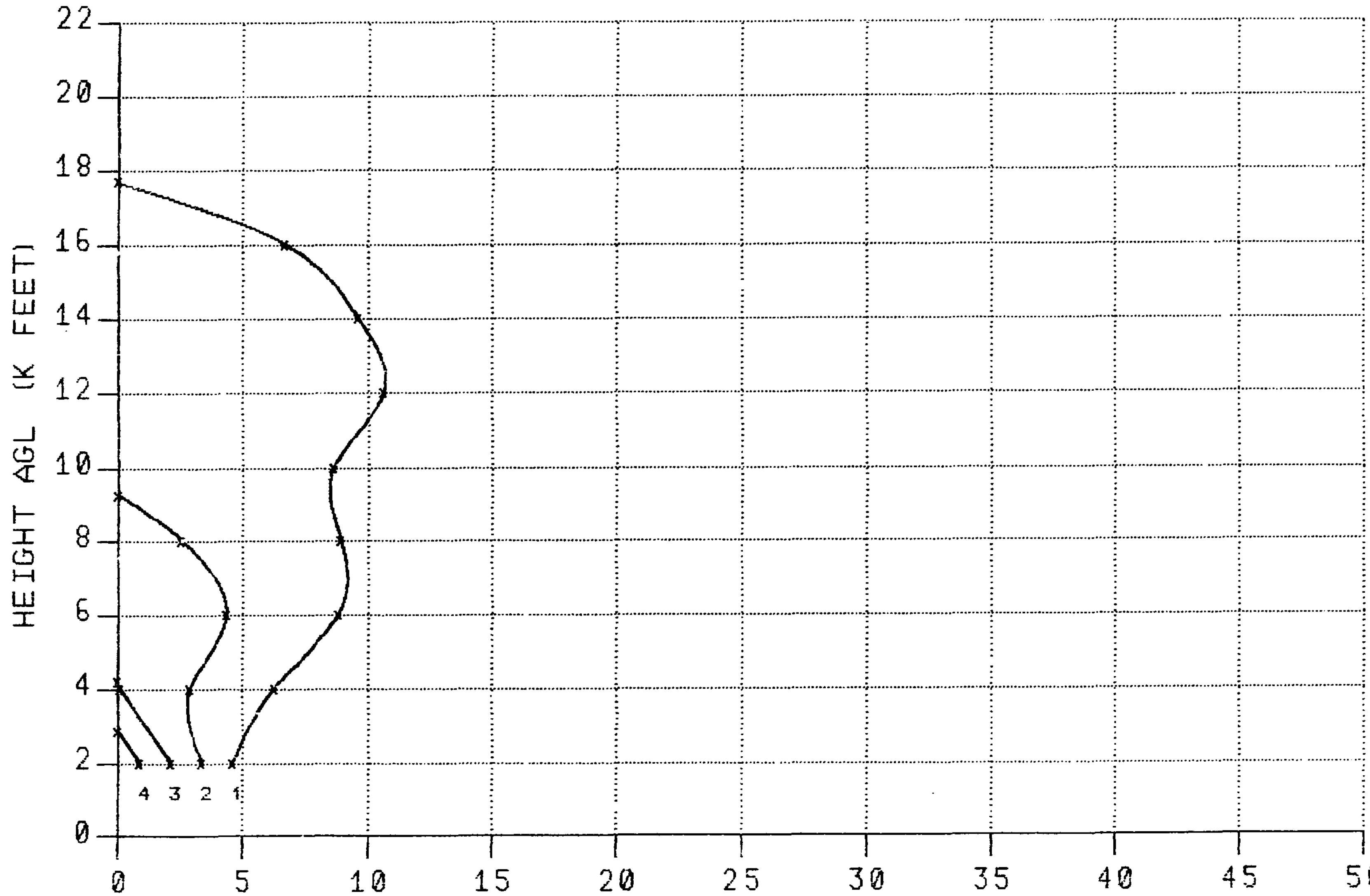
BKGND. REFLECTANCE: 00 TO 14 PERCENT
SOLAR ELEV. ANGLE : SET @ 25 DEGREE
SURFACE VISIBILITY: 1 MILE (1.6 KM)
MIXING LYR. DEPTH : 3000 FEET



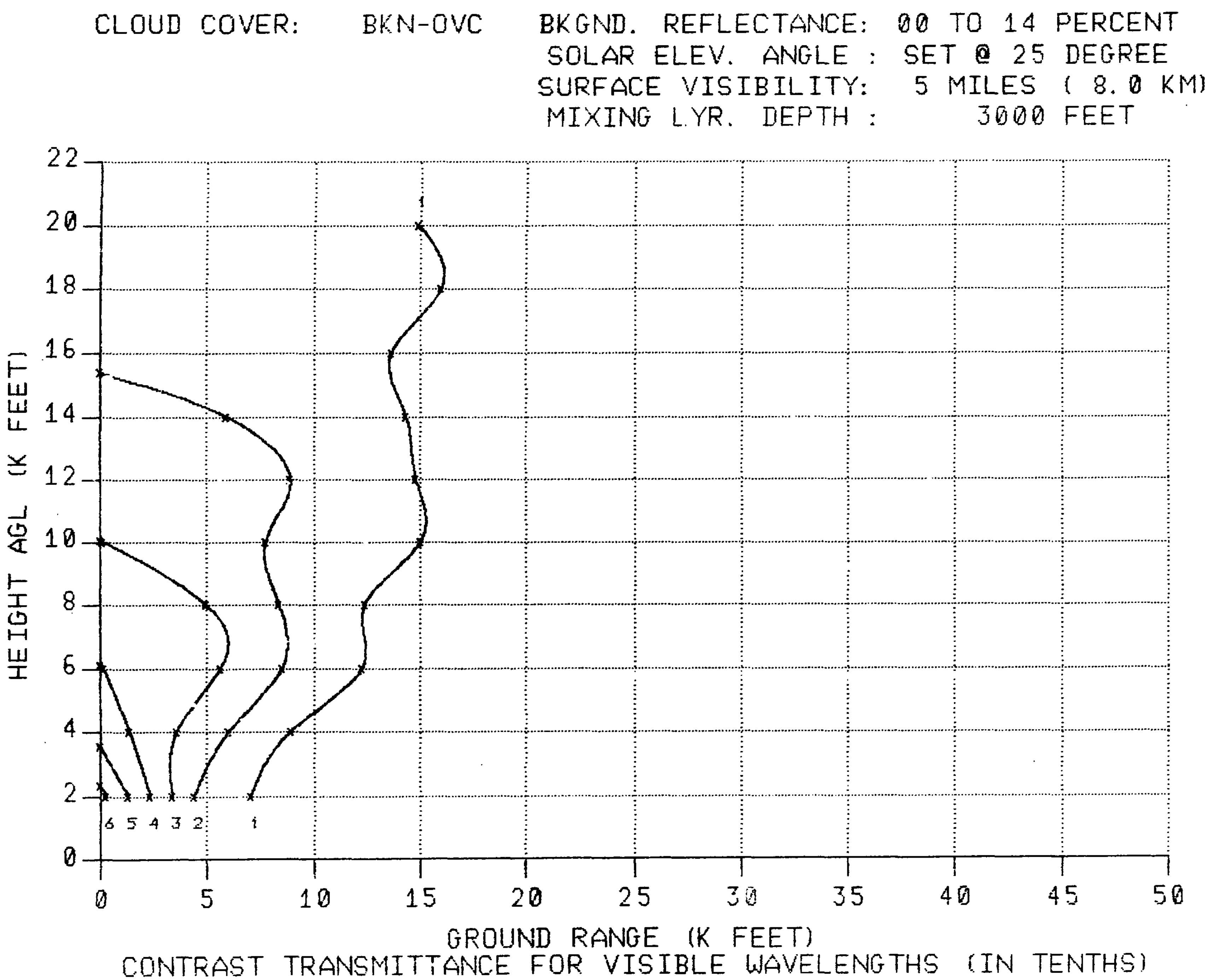
CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

CLOUD COVER: BKN-OVC

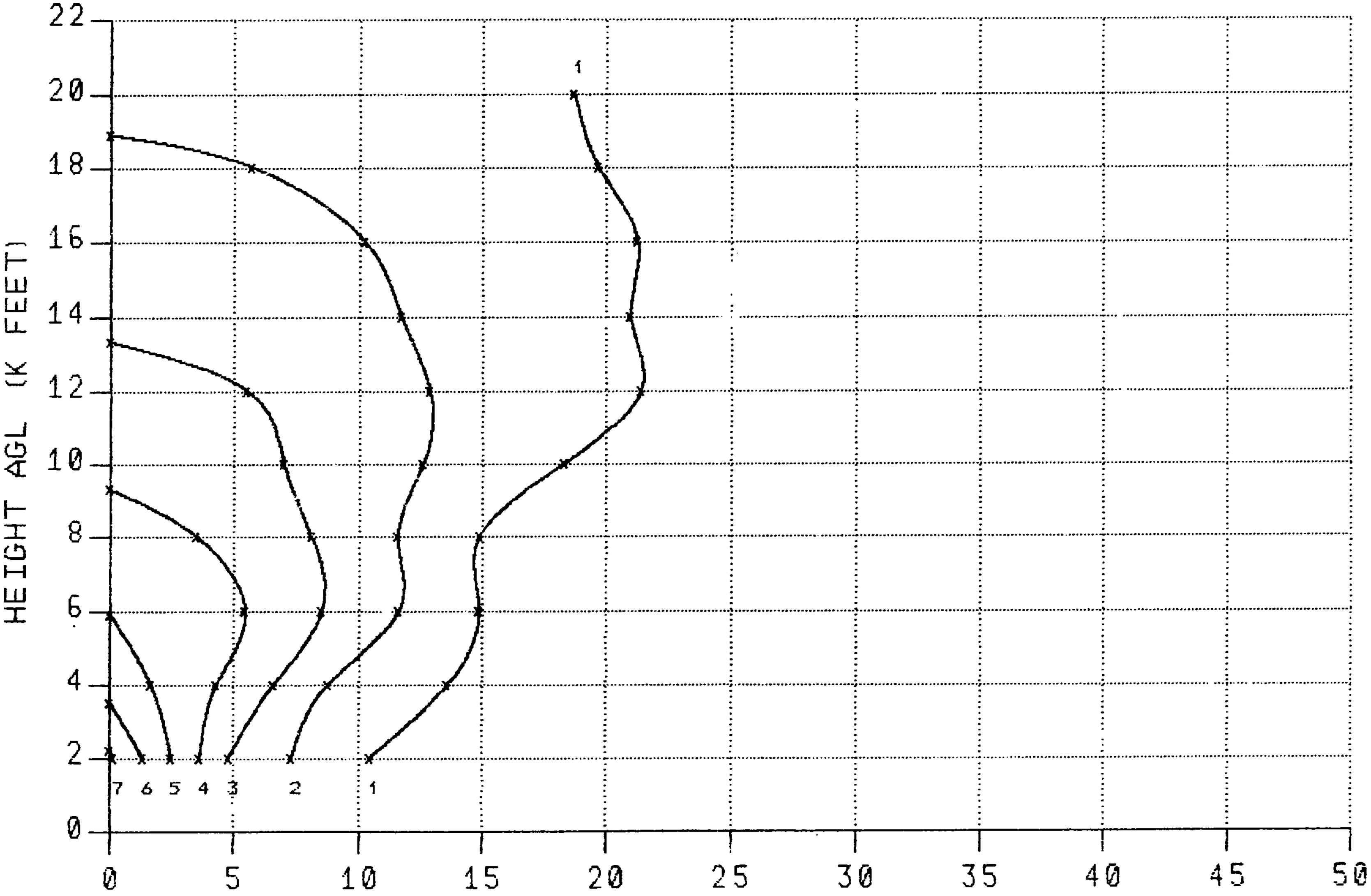
BKGND. REFLECTANCE: 00 TO 14 PERCENT
SOLAR ELEV. ANGLE : SET @ 25 DEGREE
SURFACE VISIBILITY: 3 MILES (4.8 KM)
MIXING LYR. DEPTH : 3000 FEET



GROUND RANGE (K FEET)
CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)


CLOUD COVER: BKN-OVC
BKGND. REFLECTANCE: 00 TO 14 PERCENT
SOLAR ELEV. ANGLE : SET @ 25 DEGREE
SURFACE VISIBILITY: 5 MILES (8.0 KM)
MIXING LYR. DEPTH : 3000 FEET
HEIGHT AGL (K FEET)
22
20
18
16
14
12
10
8
6
4
2
0
6 5 4 3 2 1
0
5
10
15
20
25
30
35
40
45
50
GROUND RANGE (K FEET)
CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

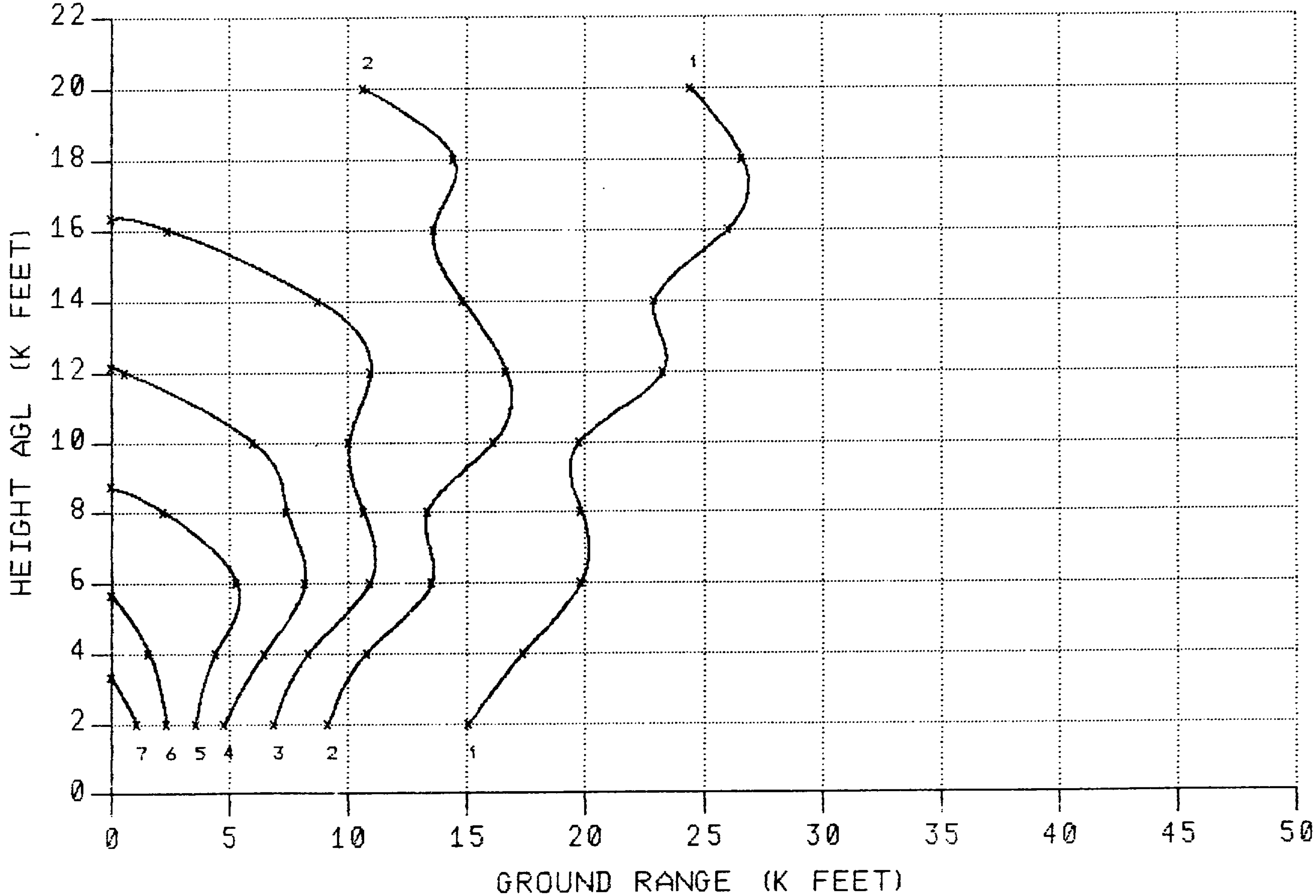
CLOUD COVER: BKN-OVC BKGND. REFLECTANCE: 00 TO 14 PERCENT
SOLAR ELEV. ANGLE : SET @ 25 DEGREE
SURFACE VISIBILITY: 7 MILES (11.3 KM)
MIXING LYR. DEPTH : 3000 FEET



CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

CLOUD COVER: BKN-OVC

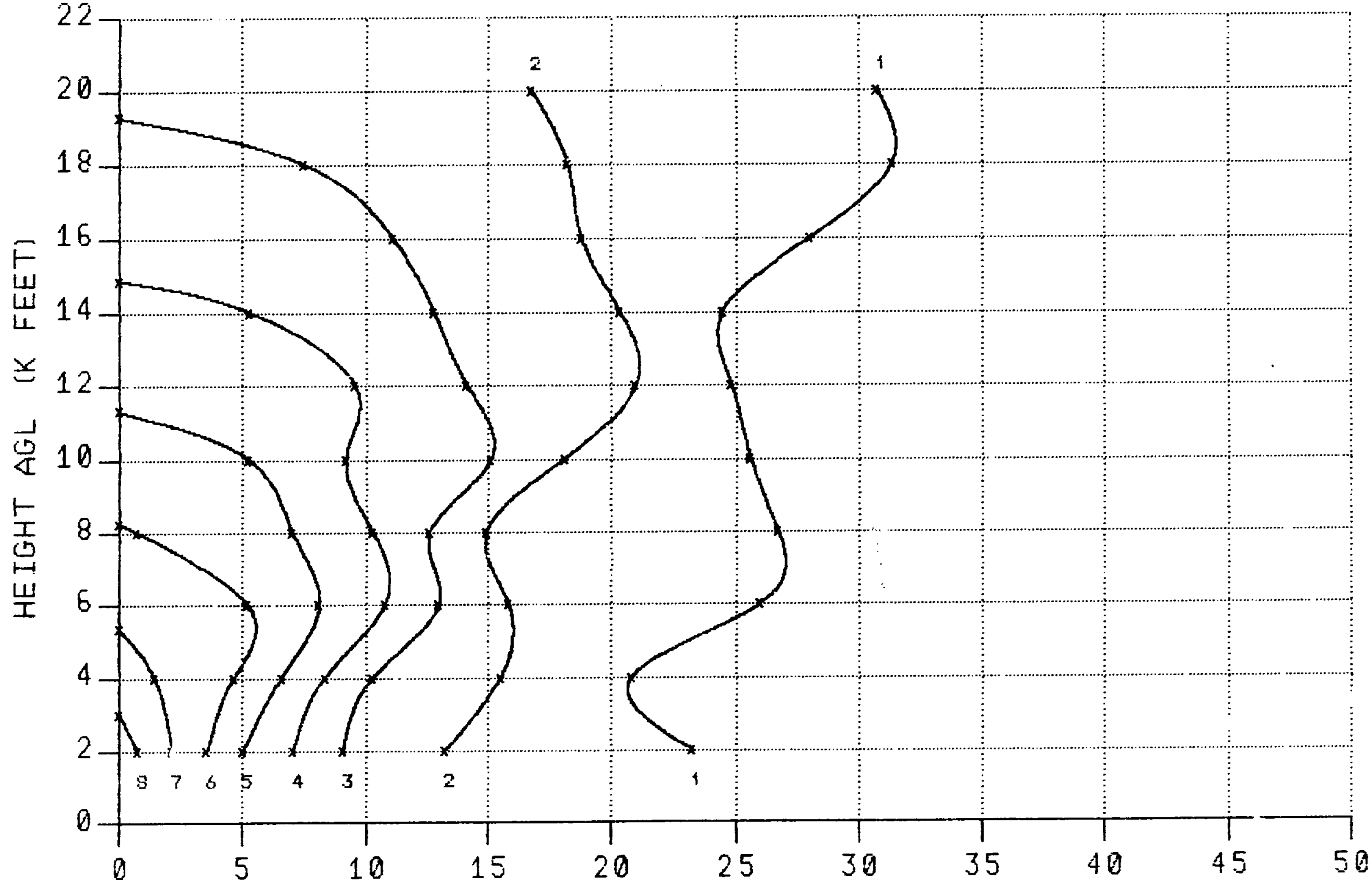
BKGND. REFLECTANCE: 00 TO 14 PERCENT
SOLAR ELEV. ANGLE : SET @ 25 DEGREE
SURFACE VISIBILITY: 10 MILES (16.1 KM)
MIXING LYR. DEPTH : 3000 FEET



CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

CLOUD COVER: BKN-OVC

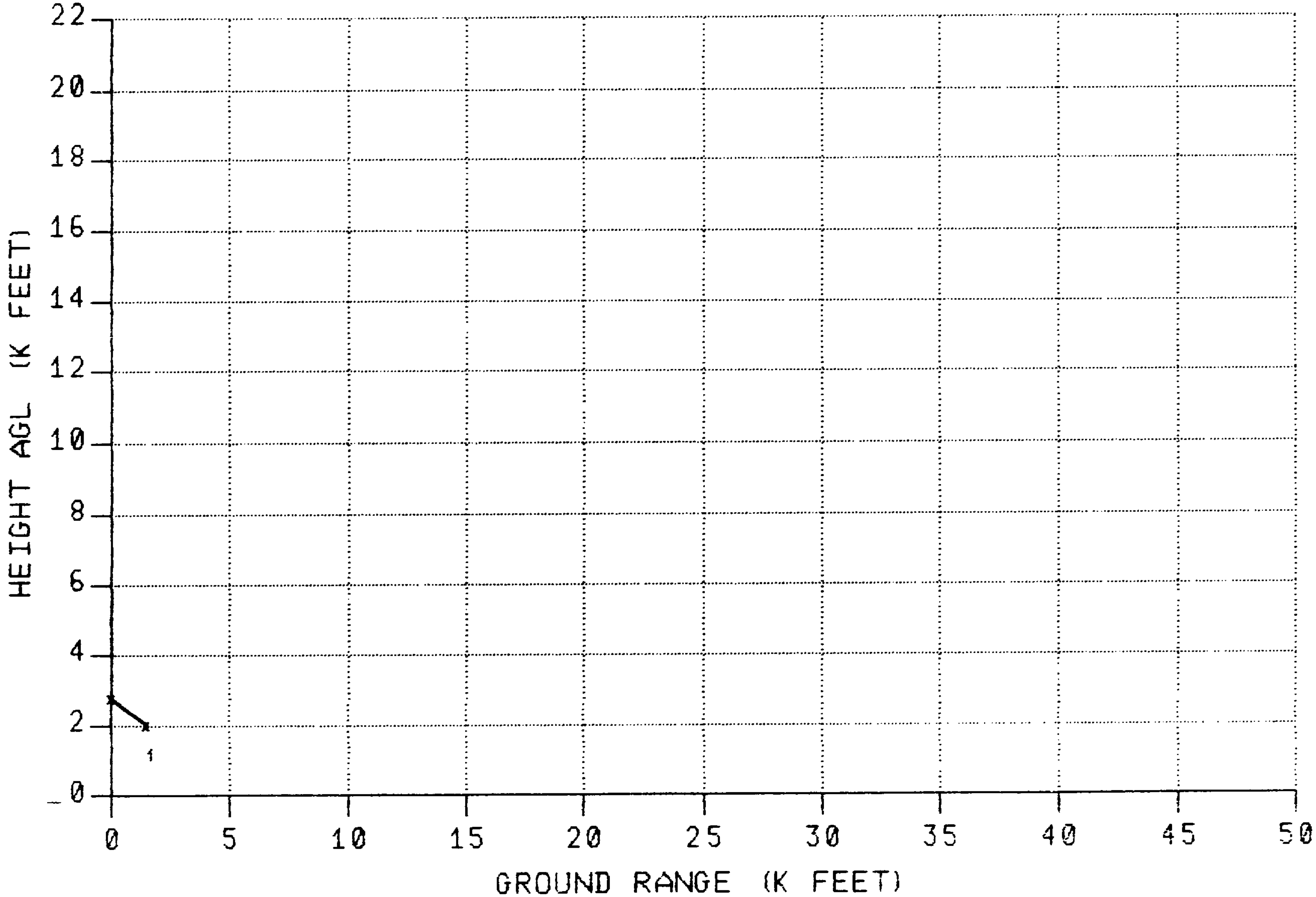
BKGND. REFLECTANCE: 00 TO 14 PERCENT
SOLAR ELEV. ANGLE : SET @ 25 DEGREE
SURFACE VISIBILITY: 15 MILES (24.1 KM)
MIXING LYR. DEPTH : 3000 FEET



GROUND RANGE (K FEET)
CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

CLOUD COVER: BKN-OVC

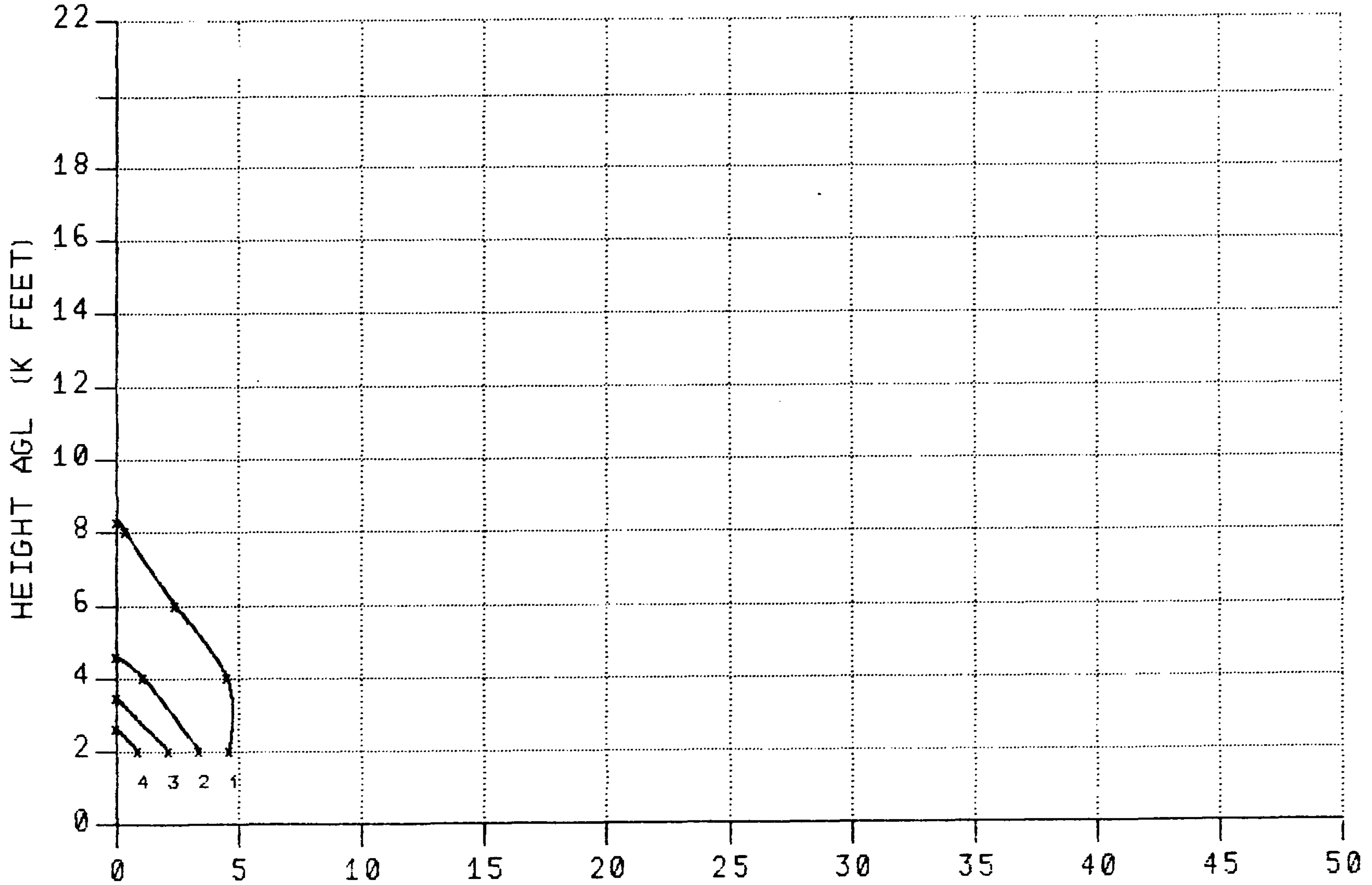
BKGND. .REFLECTANCE: 00 TO 14 PERCENT
SOLAR ELEV. ANGLE : SET @ 25 DEGREE
SURFACE VISIBILITY: 1 MILE (1.6 KM)
MIXING LYR. DEPTH : 6000 FEET



CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

CLOUD COVER: BKN-OVC

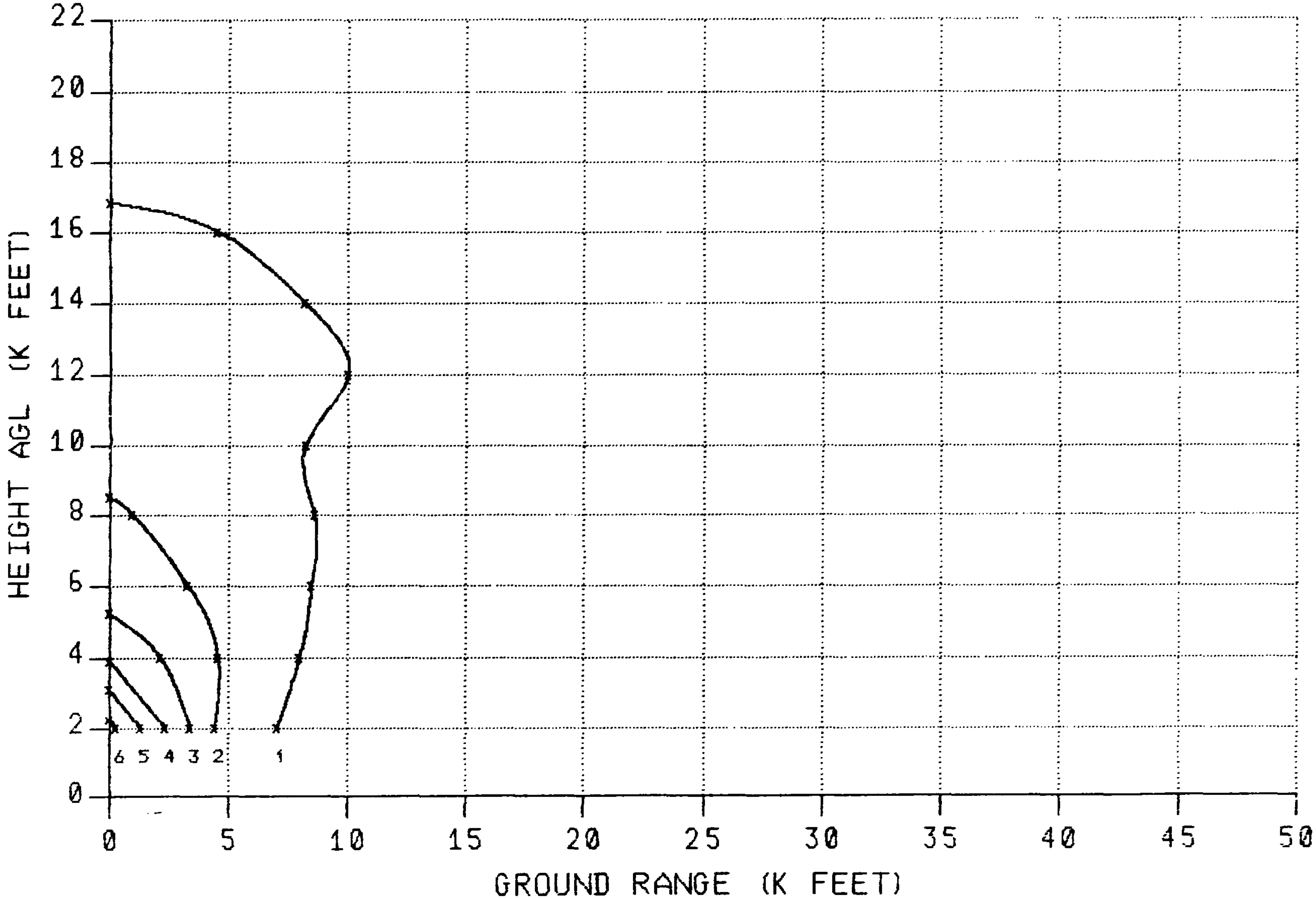
BKGND. REFLECTANCE: 00 TO 14 PERCENT
SOLAR ELEV. ANGLE : SET @ 25 DEGREE
SURFACE VISIBILITY: 3 MILES (4.8 KM)
MIXING LYR. DEPTH : 6000 FEET



CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

CLOUD COVER: BKN-OVC

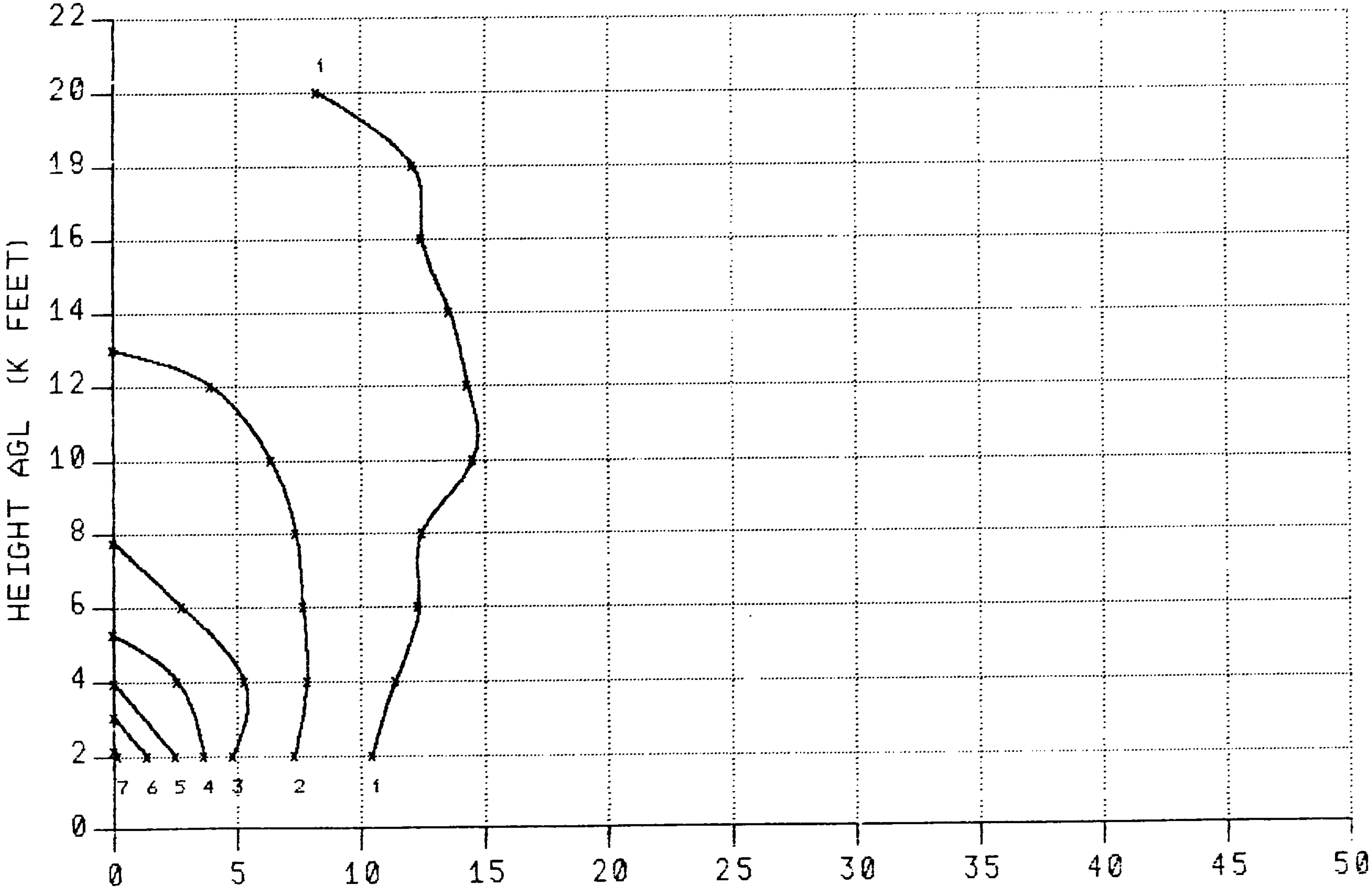
BKGND. REFLECTANCE: 00 TO 14 PERCENT
SOLAR ELEV. ANGLE : SET @ 25 DEGREE
SURFACE VISIBILITY: 5 MILES (8.0 KM)
MIXING LYR. DEPTH : 6000 FEET



CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

CLOUD COVER: BKN-OVC

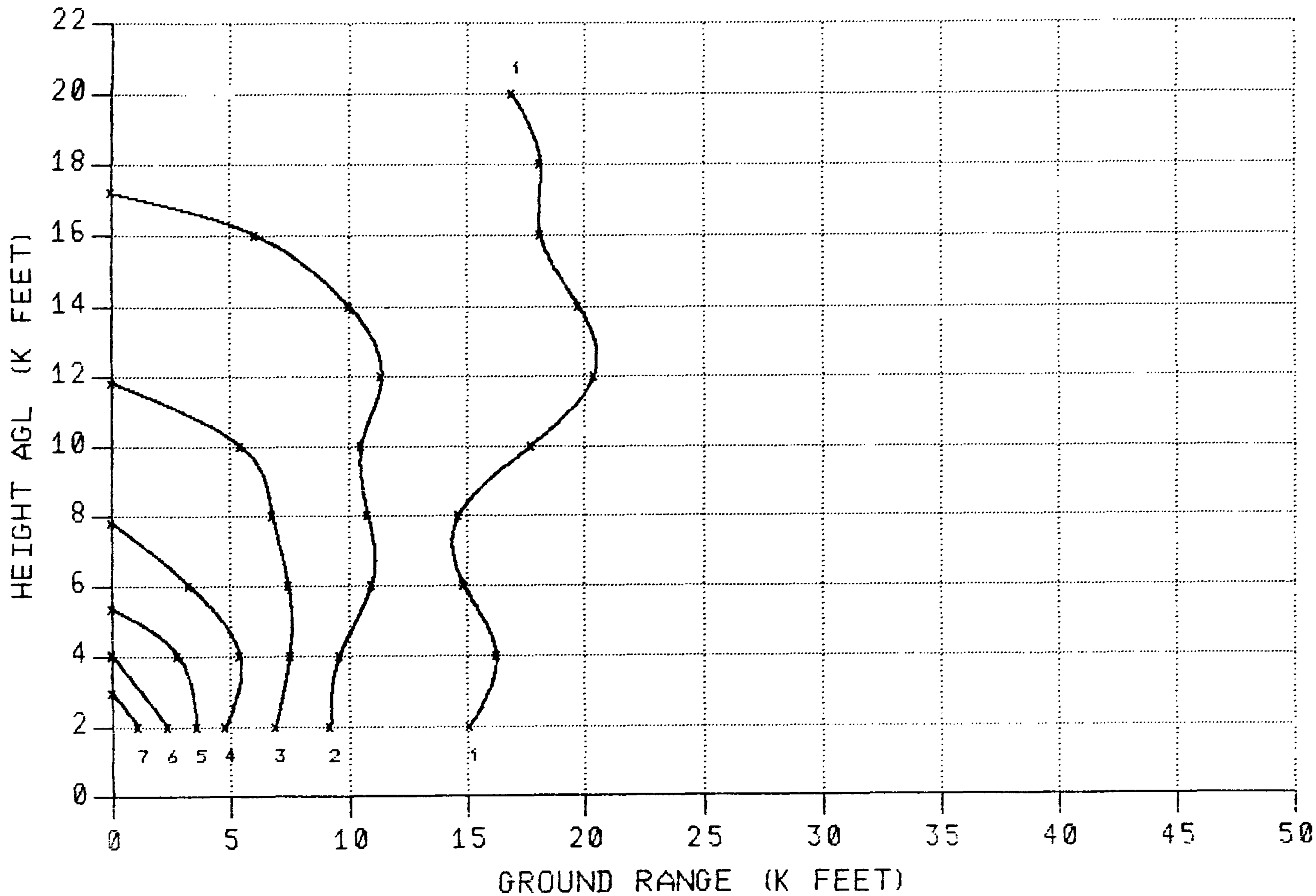
BKGND. REFLECTANCE: 00 TO 14 PERCENT
SOLAR ELEV. ANGLE : SET @ 25 DEGREE
SURFACE VISIBILITY: 7 MILES (11.3 KM)
MIXING LYR. DEPTH : 6000 FEET



GROUND RANGE (K FEET)
CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

CLOUD COVER: BKN-OVC

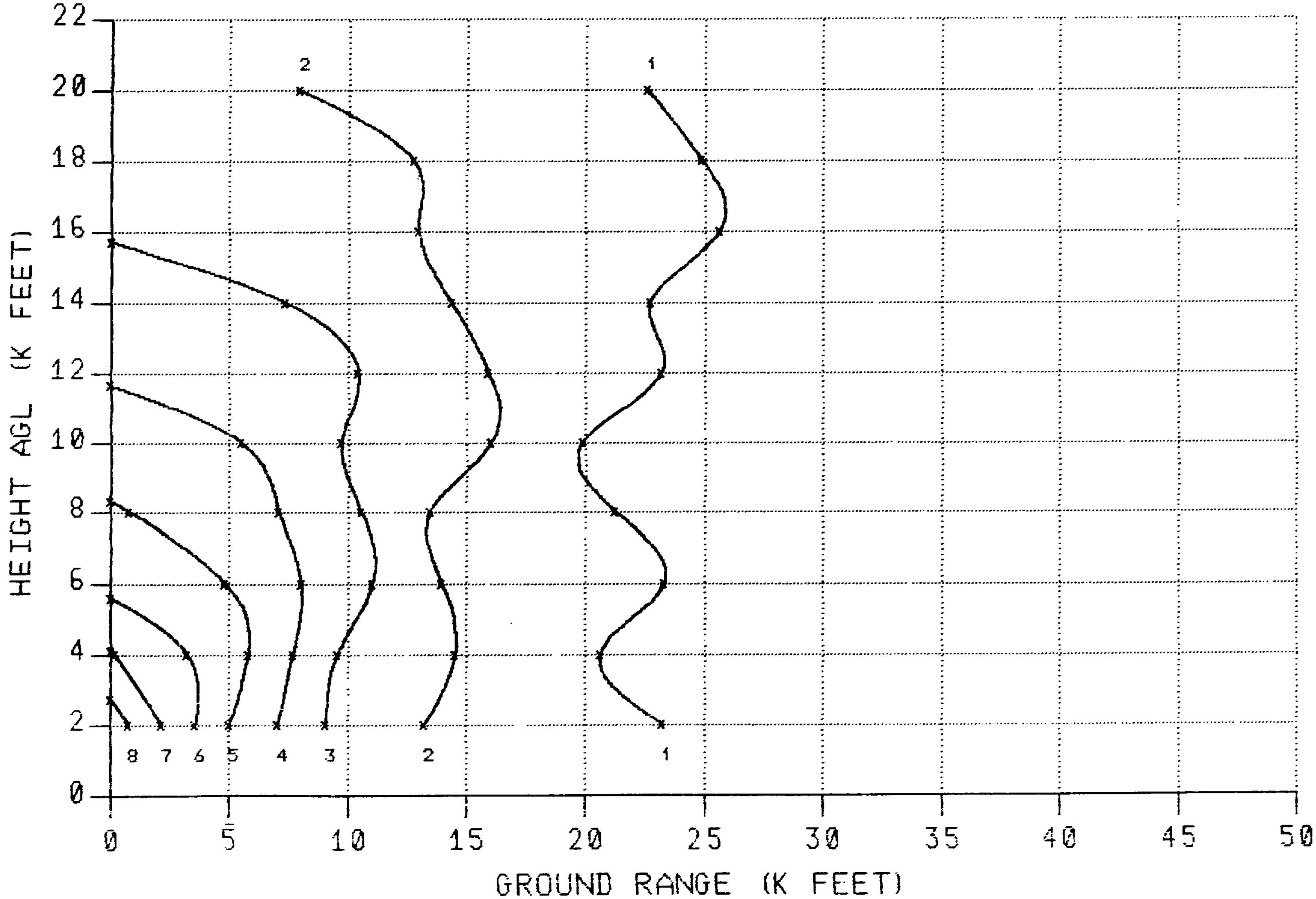
BKGND. REFLECTANCE: 00 TO 14 PERCENT
SOLAR ELEV. ANGLE : SET @ 25 DEGREE
SURFACE VISIBILITY: 10 MILES (16.1 KM)
MIXING LYR. DEPTH : 6000 FEET



CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

CLOUD COVER: BKN-OVC

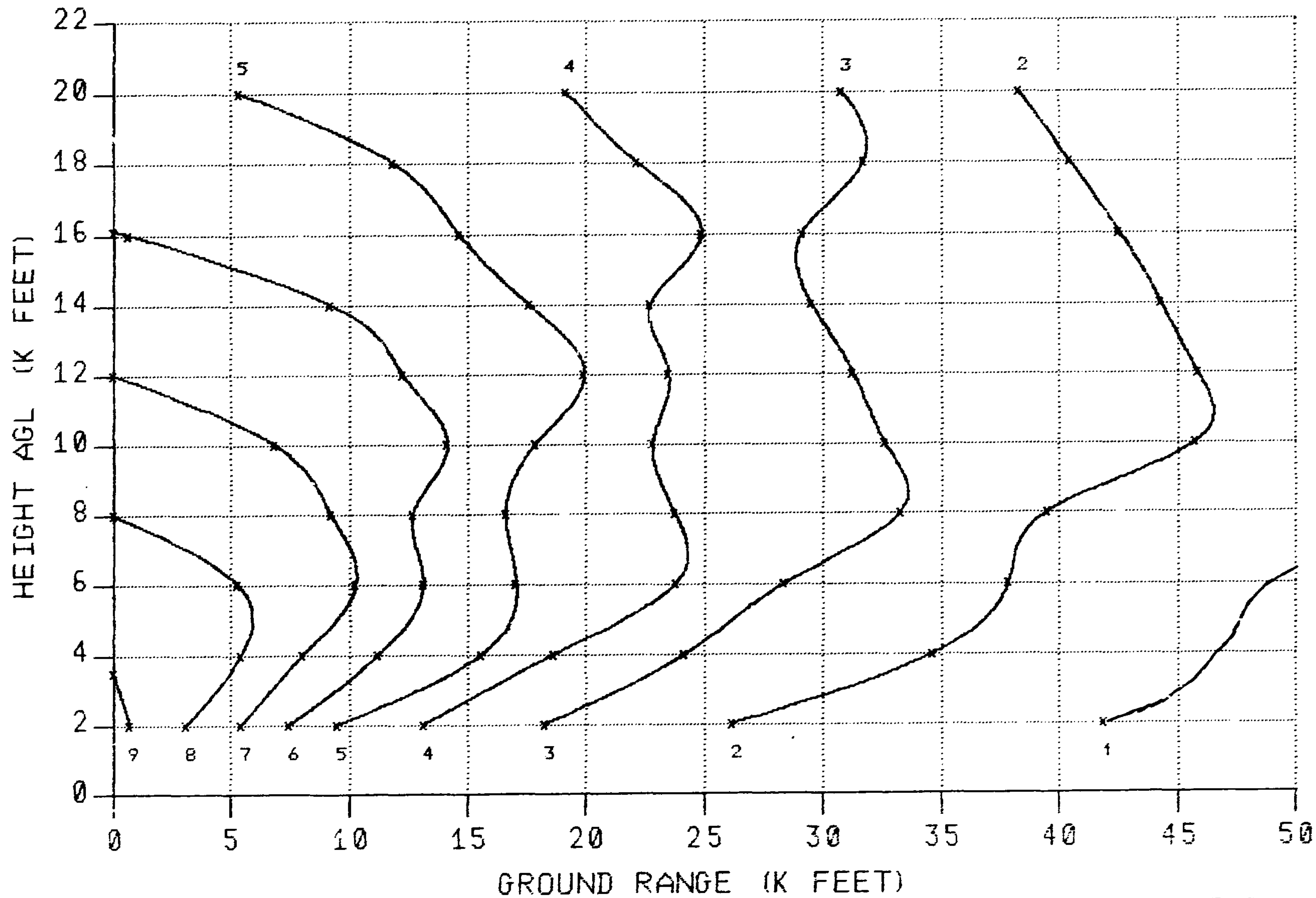
BKGND. REFLECTANCE: 00 TO 14 PERCENT
SOLAR ELEV. ANGLE : SET @ 25 DEGREE
SURFACE VISIBILITY: 15 MILES (24.1 KM)
MIXING LYR. DEPTH : 6000 FEET



CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

CLOUD COVER: BKN-OVC

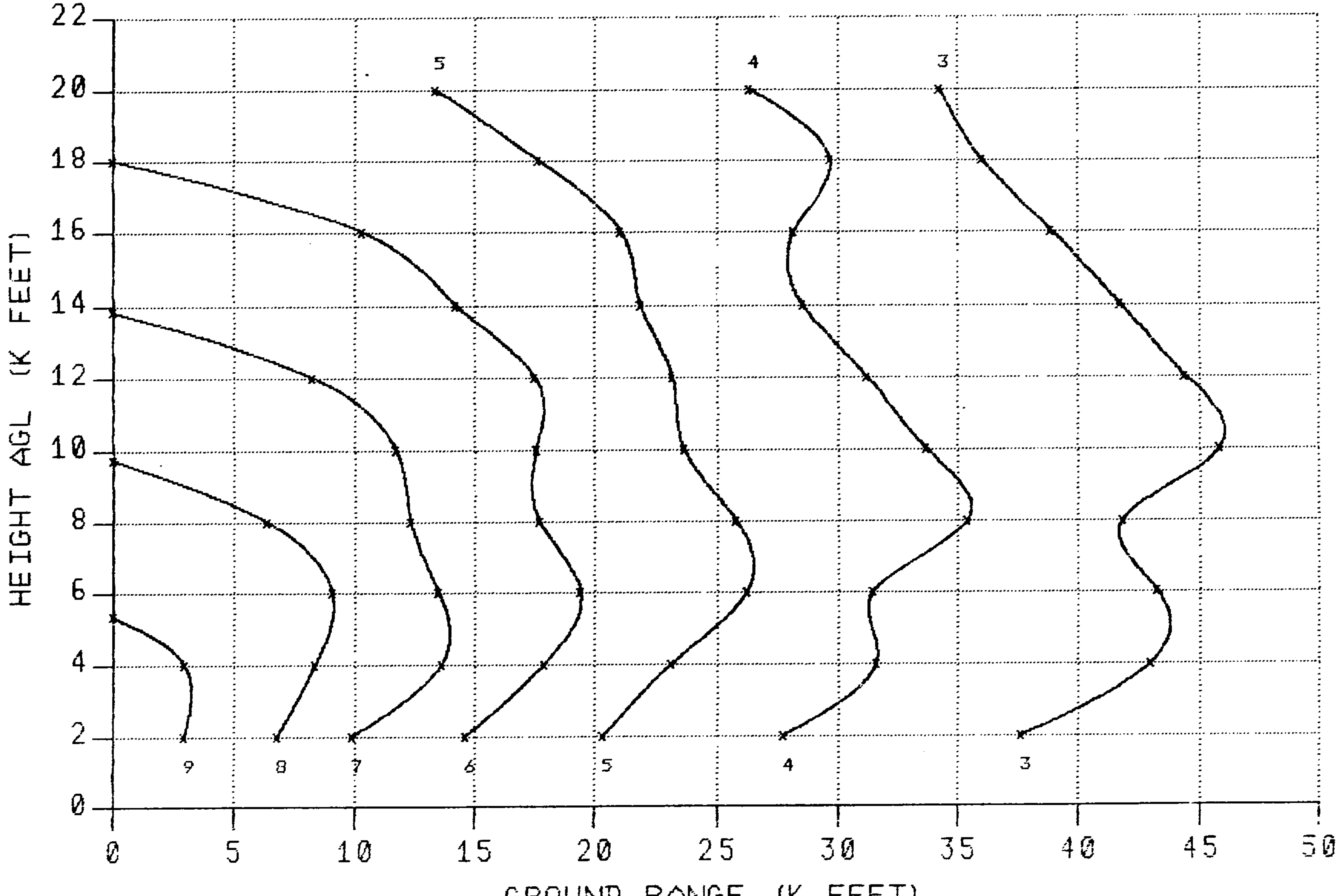
BKGND. REFLECTANCE: 15 TO 49 PERCENT
SOLAR ELEV. ANGLE : SET @ 25 DEGREE
SURFACE VISIBILITY: 1 MILE (1.6 KM)
MIXING LYR. DEPTH : BELOW 50 FEET



CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

CLOUD COVER: BKN-OVC

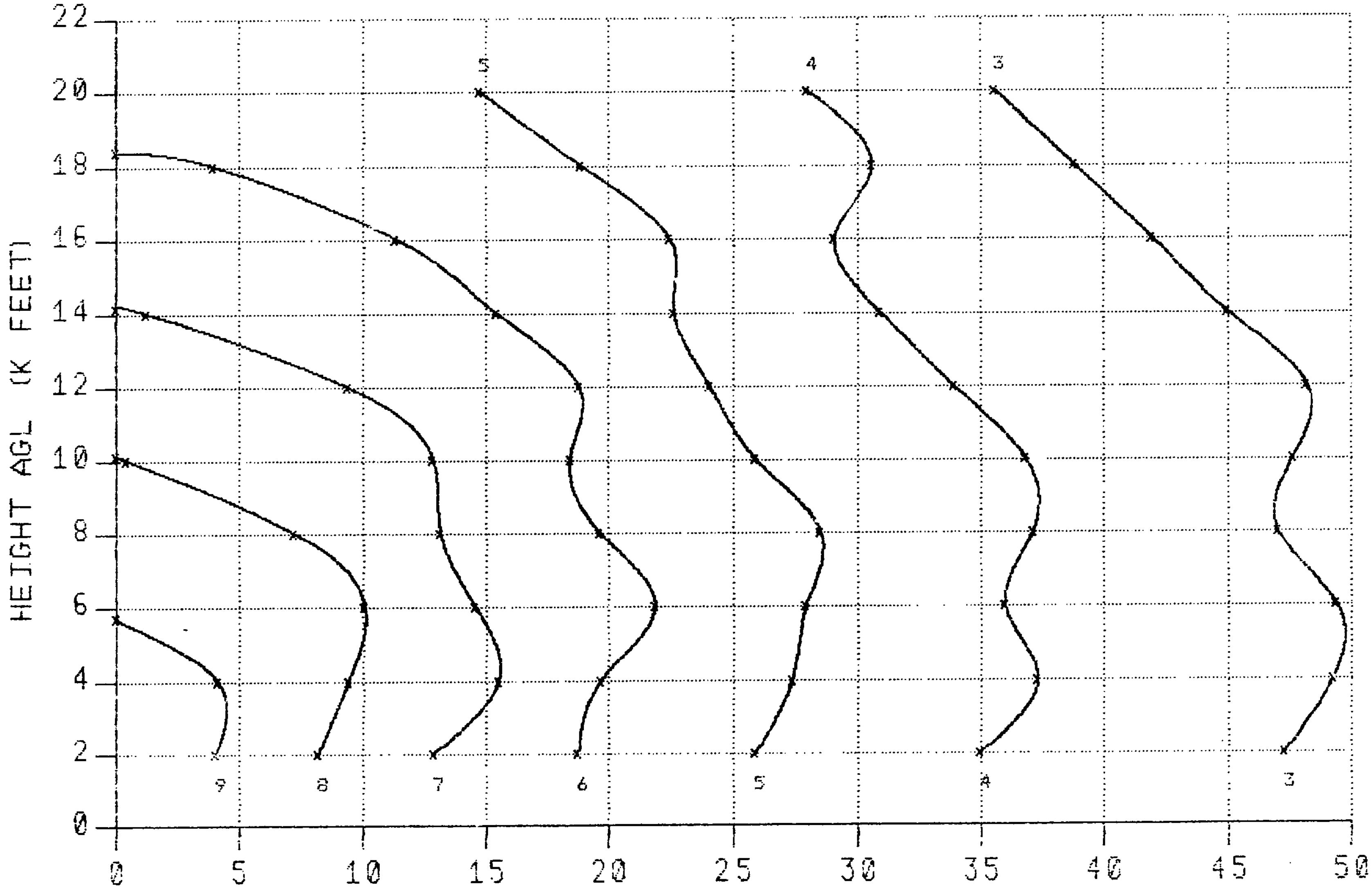
BKGND. REFLECTANCE: 15 TO 49 PERCENT
SOLAR ELEV. ANGLE : SET @ 25 DEGREE
SURFACE VISIBILITY: 3 MILES (4.8 KM)
MIXING LYR. DEPTH : BELOW 50 FEET



CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

CLOUD COVER: BKN-OVC

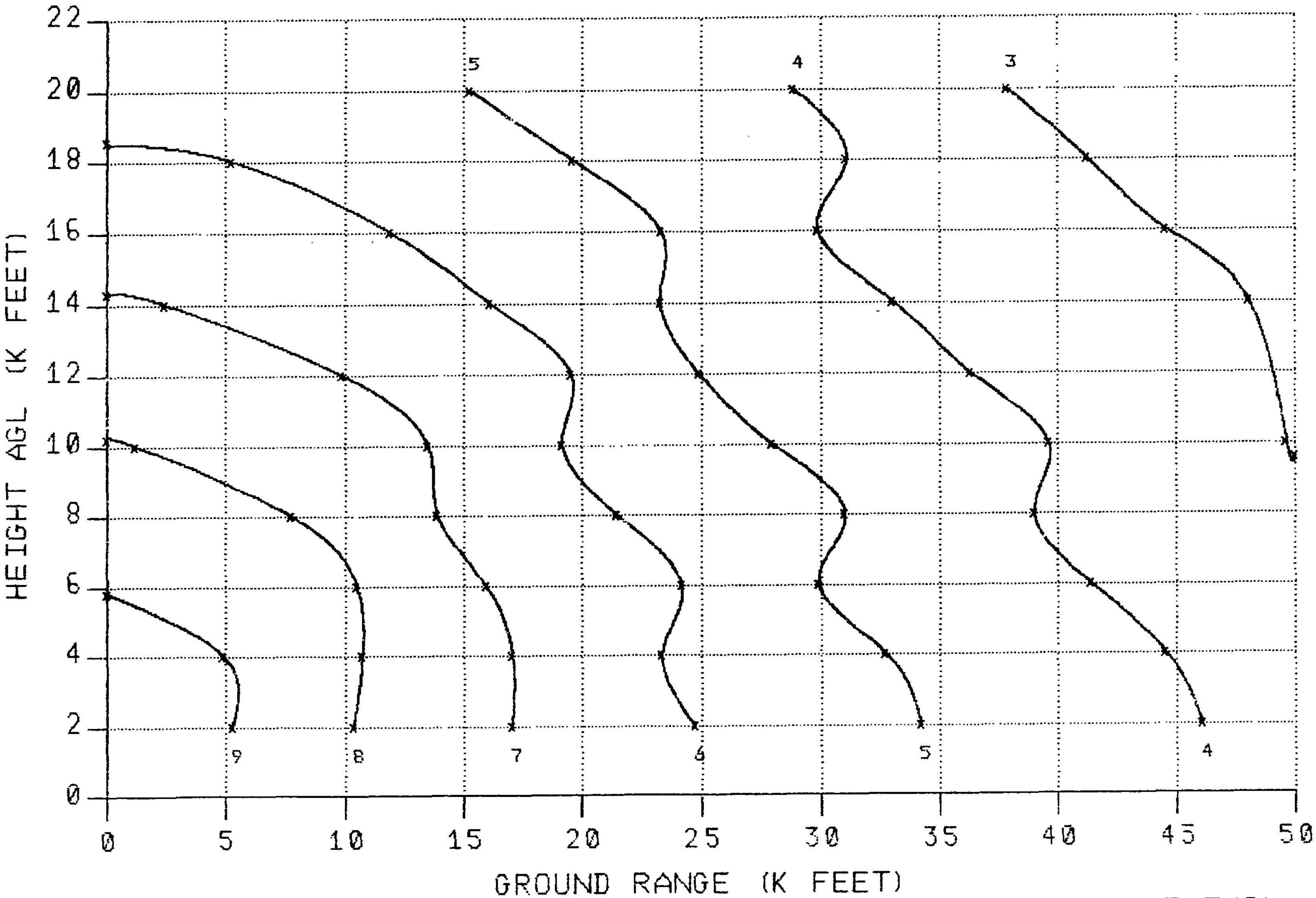
BKGND. REFLECTANCE: 15 TO 49 PERCENT
SOLAR ELEV. ANGLE : SET @ 25 DEGREE
SURFACE VISIBILITY: 5 MILES (8.0 KM)
MIXING LYR. DEPTH : BELOW 50 FEET



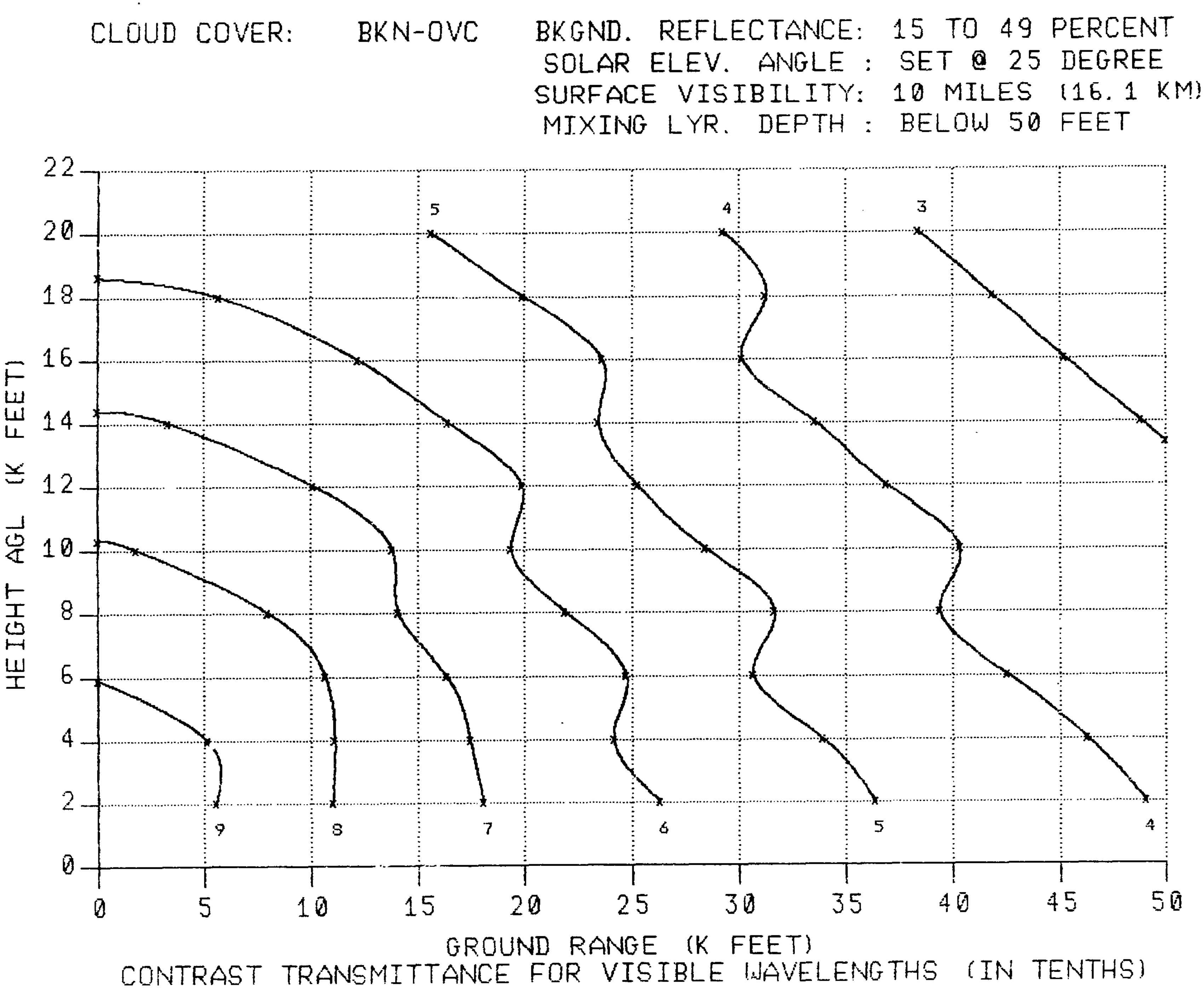
CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

CLOUD COVER: BKN-OVC

BKGND. REFLECTANCE: 15 TO 49 PERCENT
SOLAR ELEV. ANGLE : SET @ 25 DEGREE
SURFACE VISIBILITY: 7 MILES (11.3 KM)
MIXING LYR. DEPTH : BELOW 50 FEET

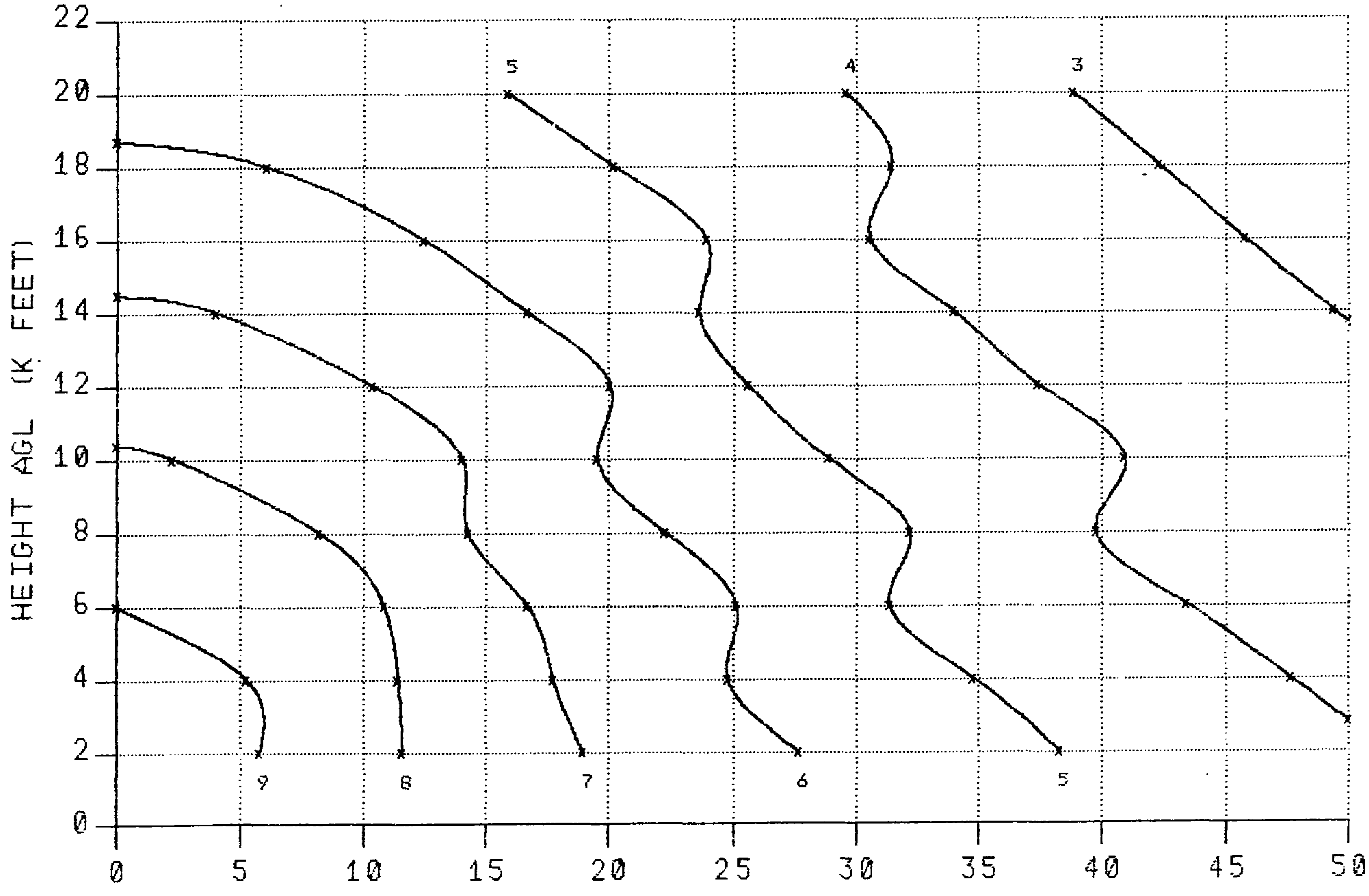


CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)


CLOUD COVER: BKN-OVC
BKGND. REFLECTANCE: 15 TO 49 PERCENT
SOLAR ELEV. ANGLE : SET @ 25 DEGREE
SURFACE VISIBILITY: 10 MILES (16.1 KM)
MIXING LYR. DEPTH : BELOW 50 FEET
HEIGHT AGL (K FEET)
GROUND RANGE (K FEET)
CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

CLOUD COVER: BKN-OVC

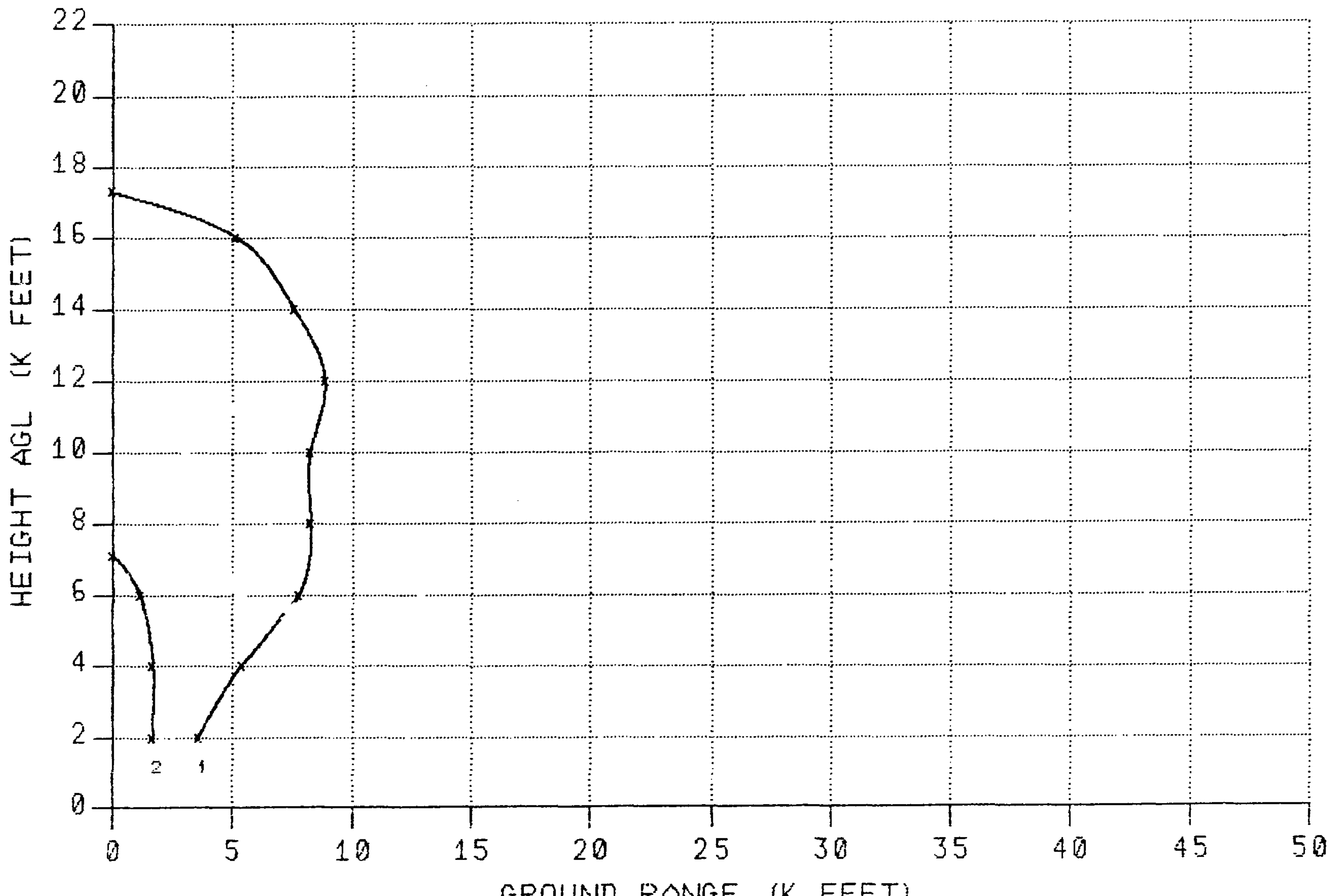
BKGND. REFLECTANCE: 15 TO 49 PERCENT
SOLAR ELEV. ANGLE : SET @ 25 DEGREE
SURFACE VISIBILITY: 15 MILES (24.1 KM)
MIXING LYR. DEPTH : BELOW 50 FEET



CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

CLOUD COVER: BKN-OVC

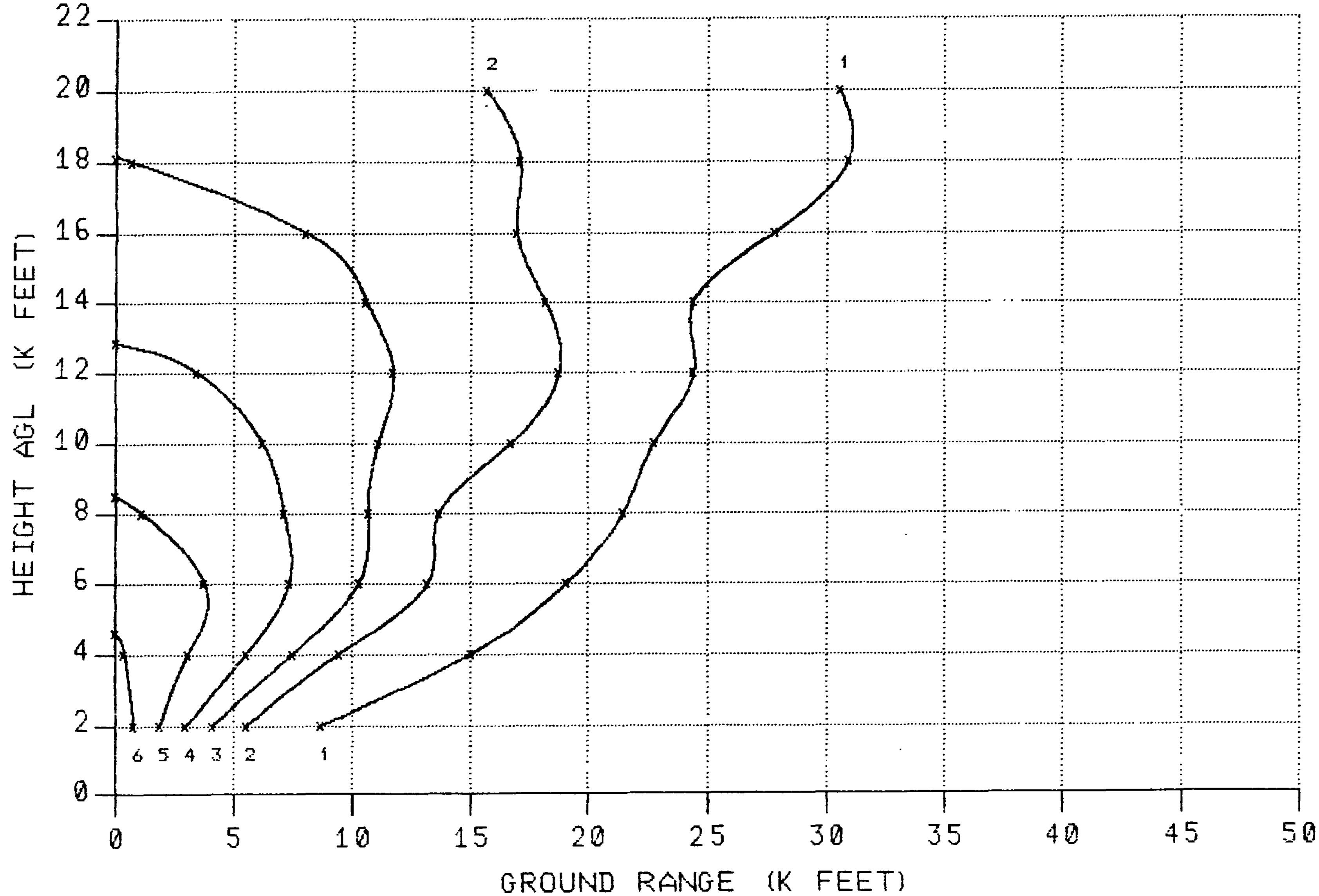
BKGND. REFLECTANCE: 15 TO 49 PERCENT
SOLAR ELEV. ANGLE : SET @ 25 DEGREE
SURFACE VISIBILITY: 1 MILE (1.6 KM)
MIXING LYR. DEPTH : 1500 FEET



CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

CLOUD COVER: BKN-OVC

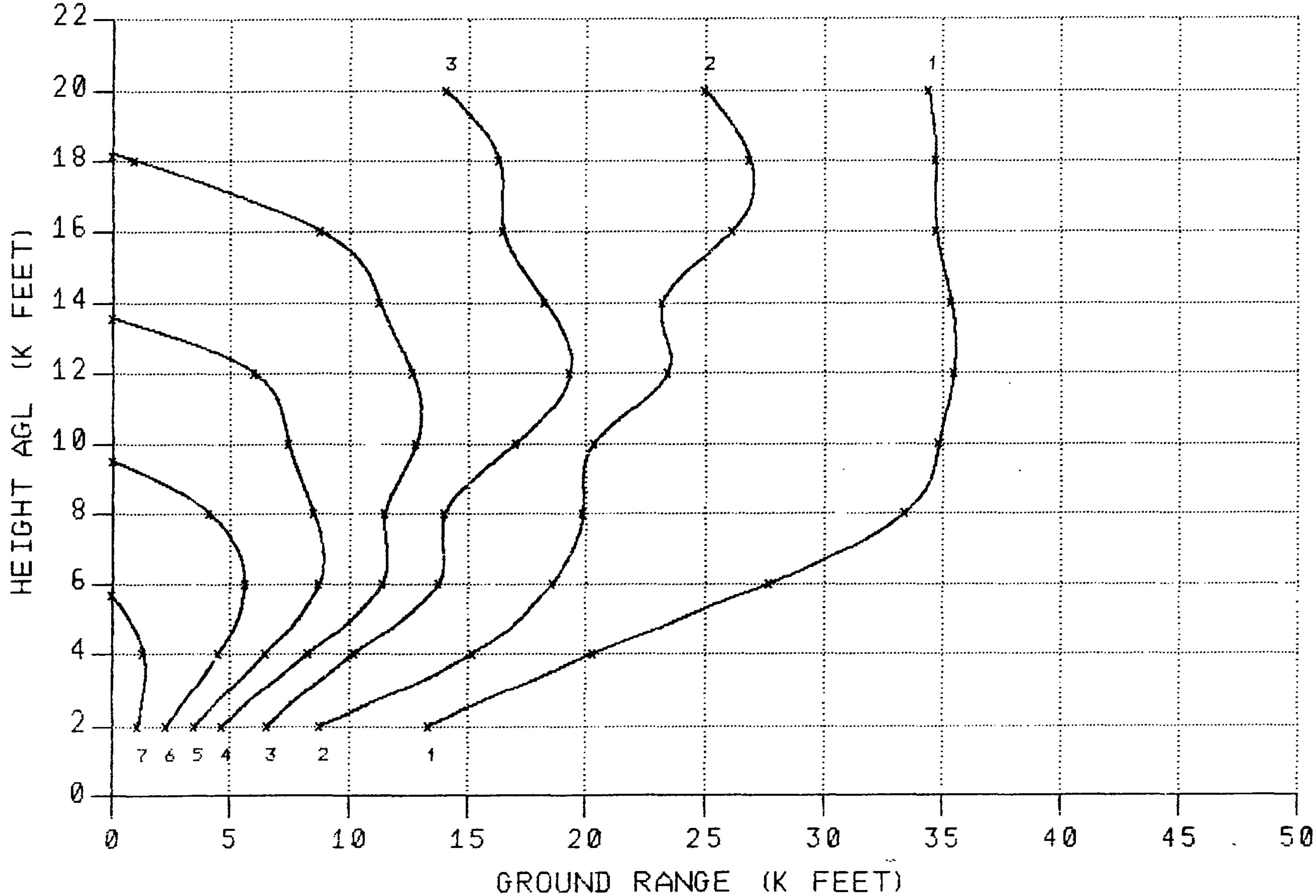
BKGND. REFLECTANCE. 15 TO 49 PERCENT
SOLAR ELEV. ANGLE . SET @ 25 DEGREE
SURFACE VISIBILITY: 3 MILES (4.8 KM)
MIXING LYR. DEPTH : 1500 FEET



CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

CLOUD COVER: BKN-OVC

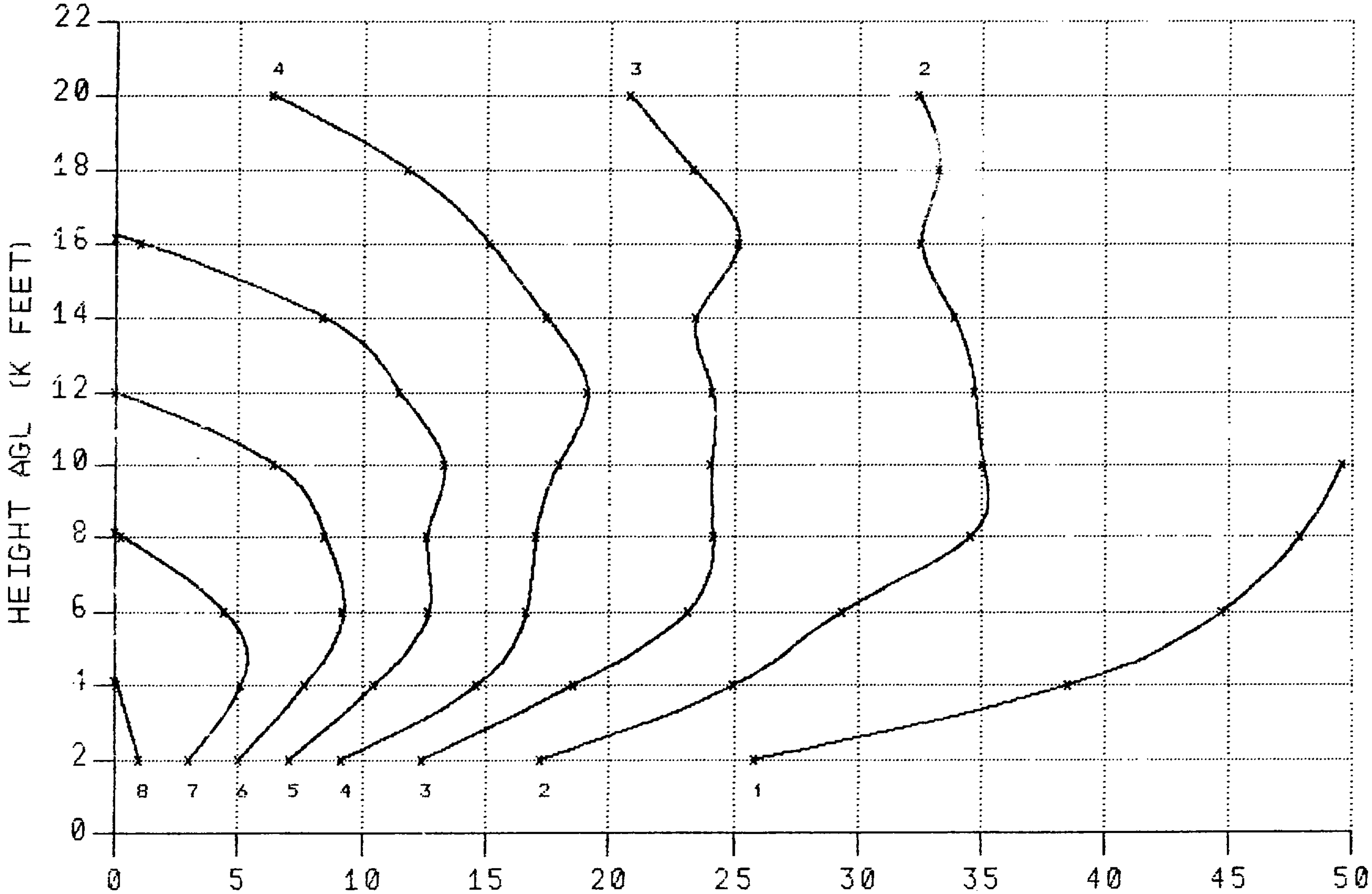
BKGND. REFLECTANCE: 15 TO 49 PERCENT
SOLAR ELEV. ANGLE : SET @ 25 DEGREE
SURFACE VISIBILITY: 5 MILES (8.0 KM)
MIXING LYR. DEPTH : 1500 FEET



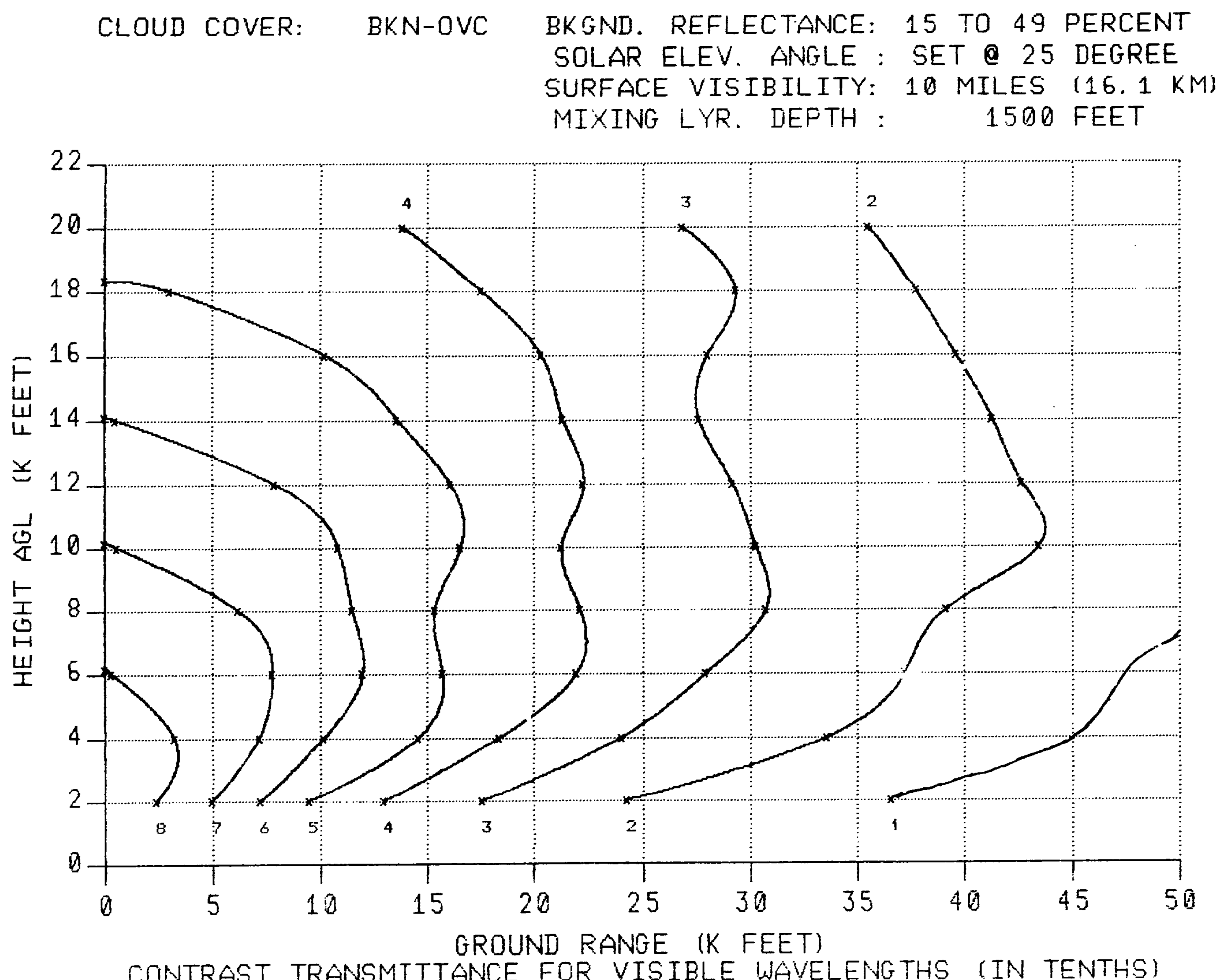
CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

CLOUD COVER: BKN-OVC

BKGND. REFLECTANCE: 15 TO 49 PERCENT
SOLAR ELEV. ANGLE : SET @ 25 DEGREE
SURFACE VISIBILITY: 7 MILES (11.3 KM)
MIXING LYR. DEPTH : 1500 FEET

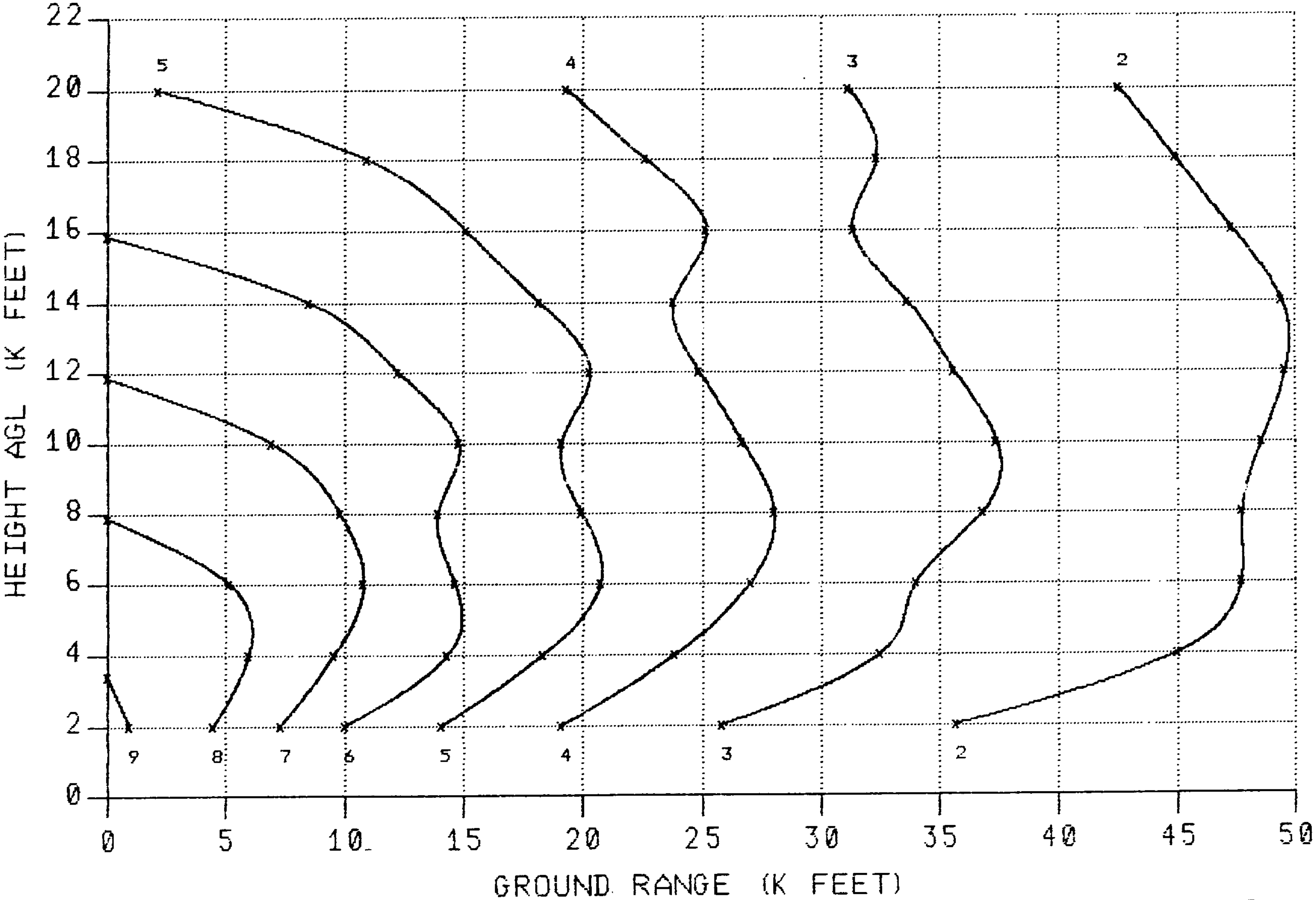


CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)


CLOUD COVER: BKN-OVC
BKGND. REFLECTANCE: 15 TO 49 PERCENT
SOLAR ELEV. ANGLE : SET @ 25 DEGREE
SURFACE VISIBILITY: 10 MILES (16.1 KM)
MIXING LYR. DEPTH : 1500 FEET
HEIGHT AGL (K FEET)
0
2
4
6
8
10
12
14
16
18
20
22
0
5
10
15
20
25
30
35
40
45
50
8
7
6
5
4
3
2
1
4
3
2
GROUND RANGE (K FEET)
CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

CLOUD COVER: BKN-OVC

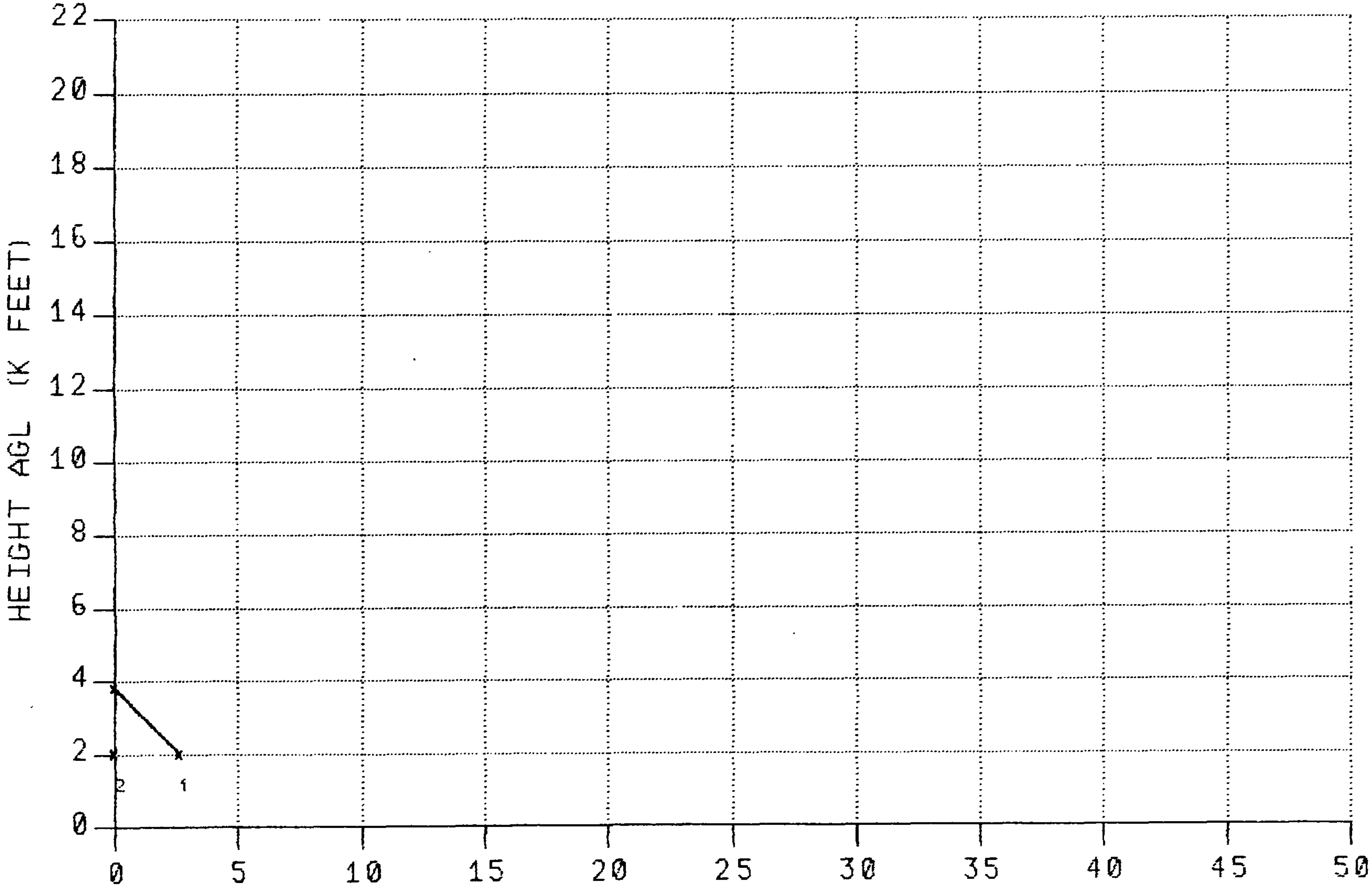
BKGND. REFLECTANCE: 15 TO 49 PERCENT
SOLAR ELEV. ANGLE : SET @ 25 DEGREE
SURFACE VISIBILITY: 15 MILES (24.1 KM)
MIXING LYR. DEPTH : 1500 FEET



CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

CLOUD COVER: BKN-OVC

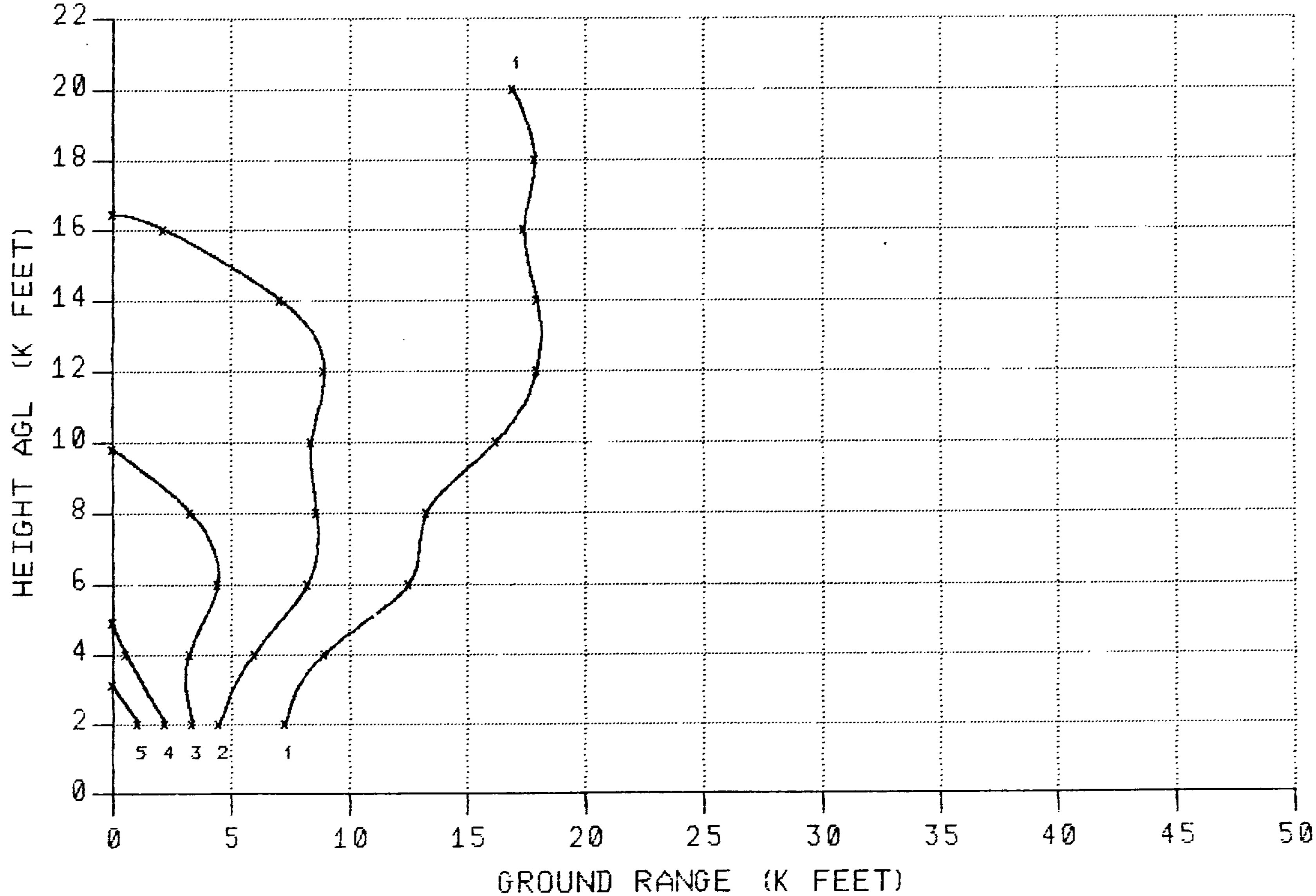
BKGND. REFLECTANCE: 15 TO 49 PERCENT
SOLAR ELEV. ANGLE : SET @ 25 DEGREE
SURFACE VISIBILITY: 1 MILE (1.6 KM)
MIXING LYR. DEPTH : 3000 FEET



GROUND RANGE (K FEET)
CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

CLOUD COVER: BKN-OVC

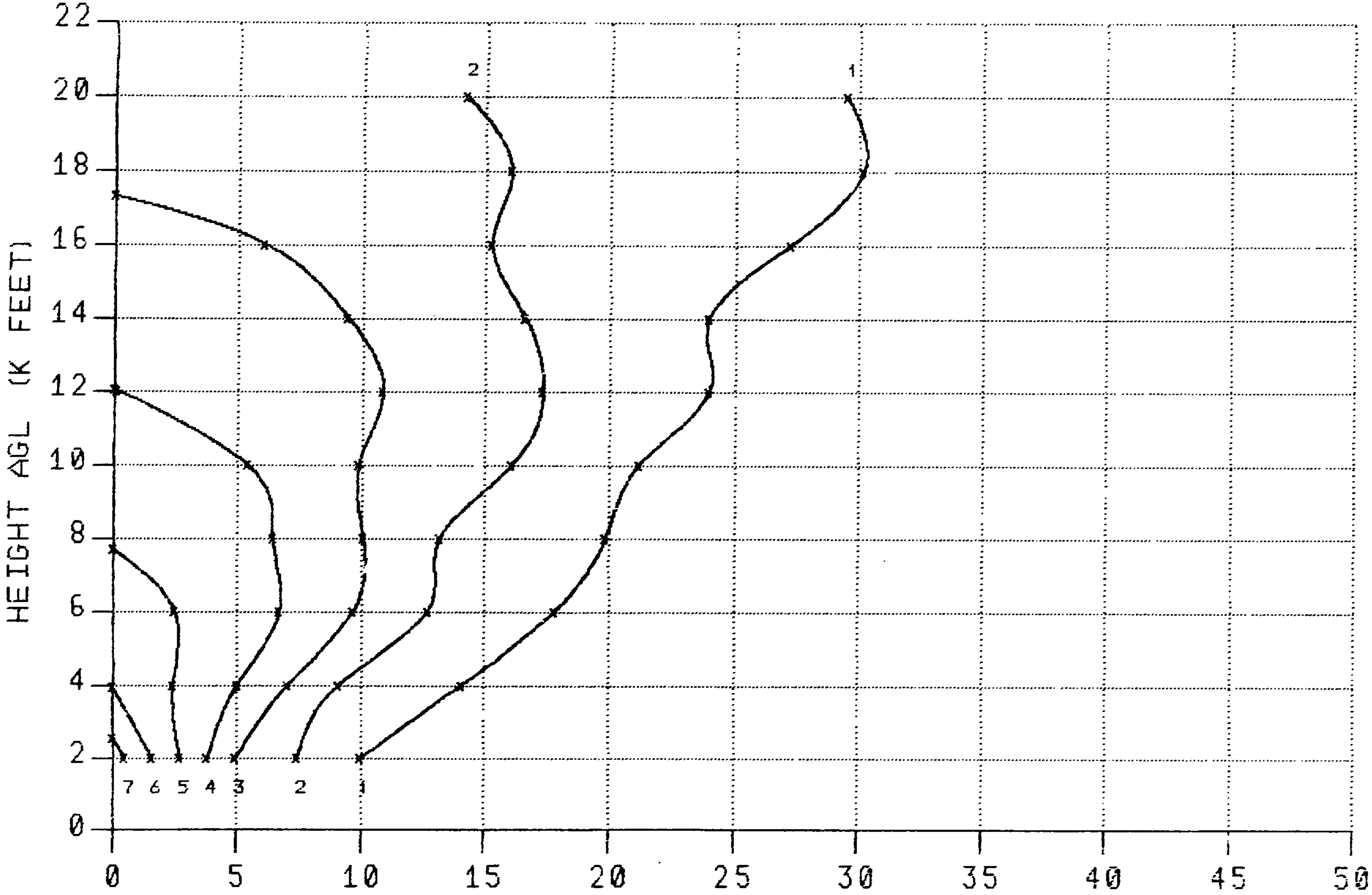
BKGND. REFLECTANCE: 15 TO 49 PERCENT
SOLAR ELEV. ANGLE : SET @ 25 DEGREE
SURFACE VISIBILITY: 3 MILES (4.8 KM)
MIXING LYR. DEPTH : 3000 FEET



CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

CLOUD COVER: BKN-OVC

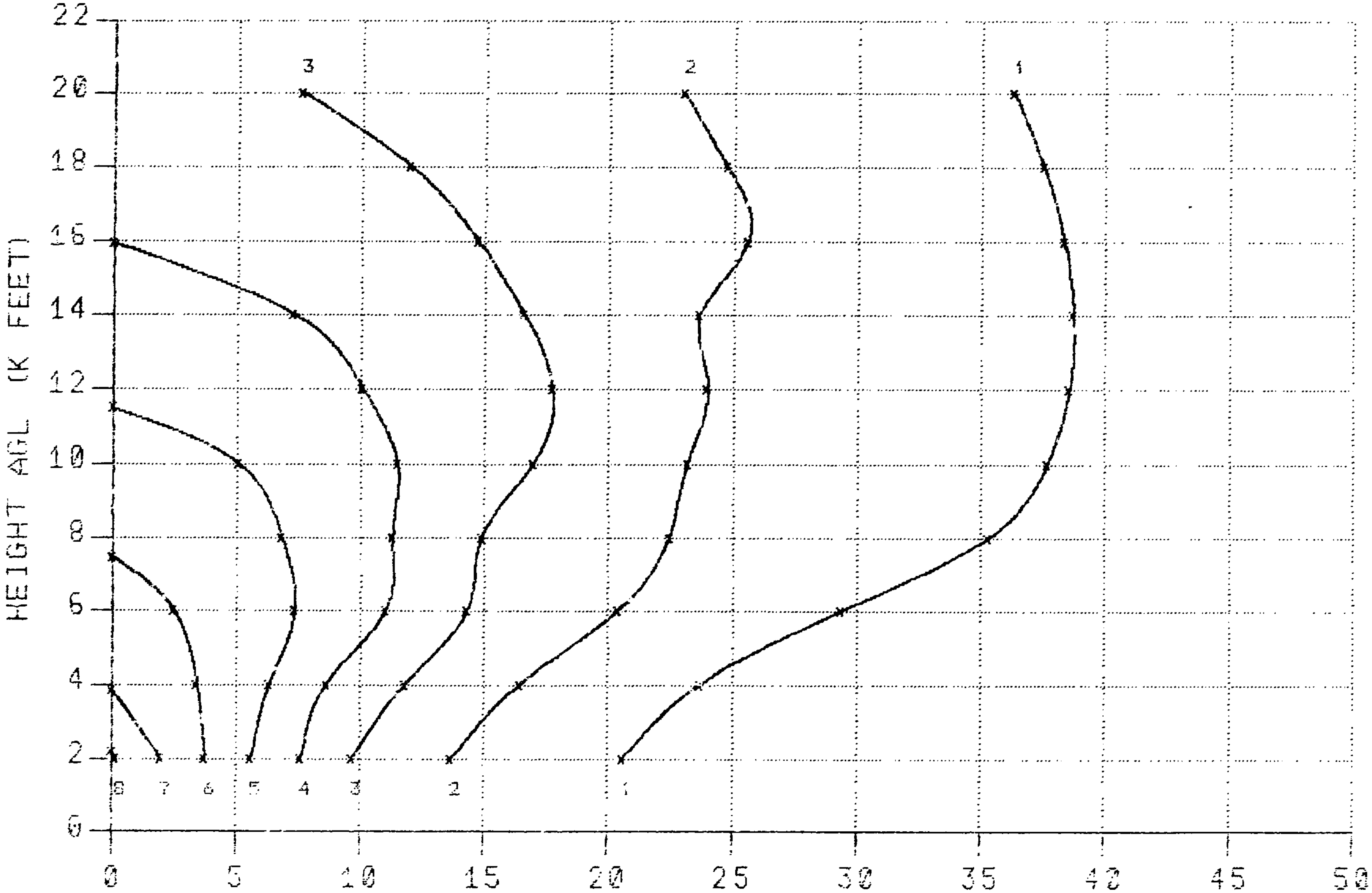
BKGND. REFLECTANCE: 15 TO 49 PERCENT
SOLAR ELEV. ANGLE : SET @ 25 DEGREE
SURFACE VISIBILITY: 5 MILES (8.0 KM)
MIXING LYR. DEPTH : 3000 FEET



GROUND RANGE (K FEET)
CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

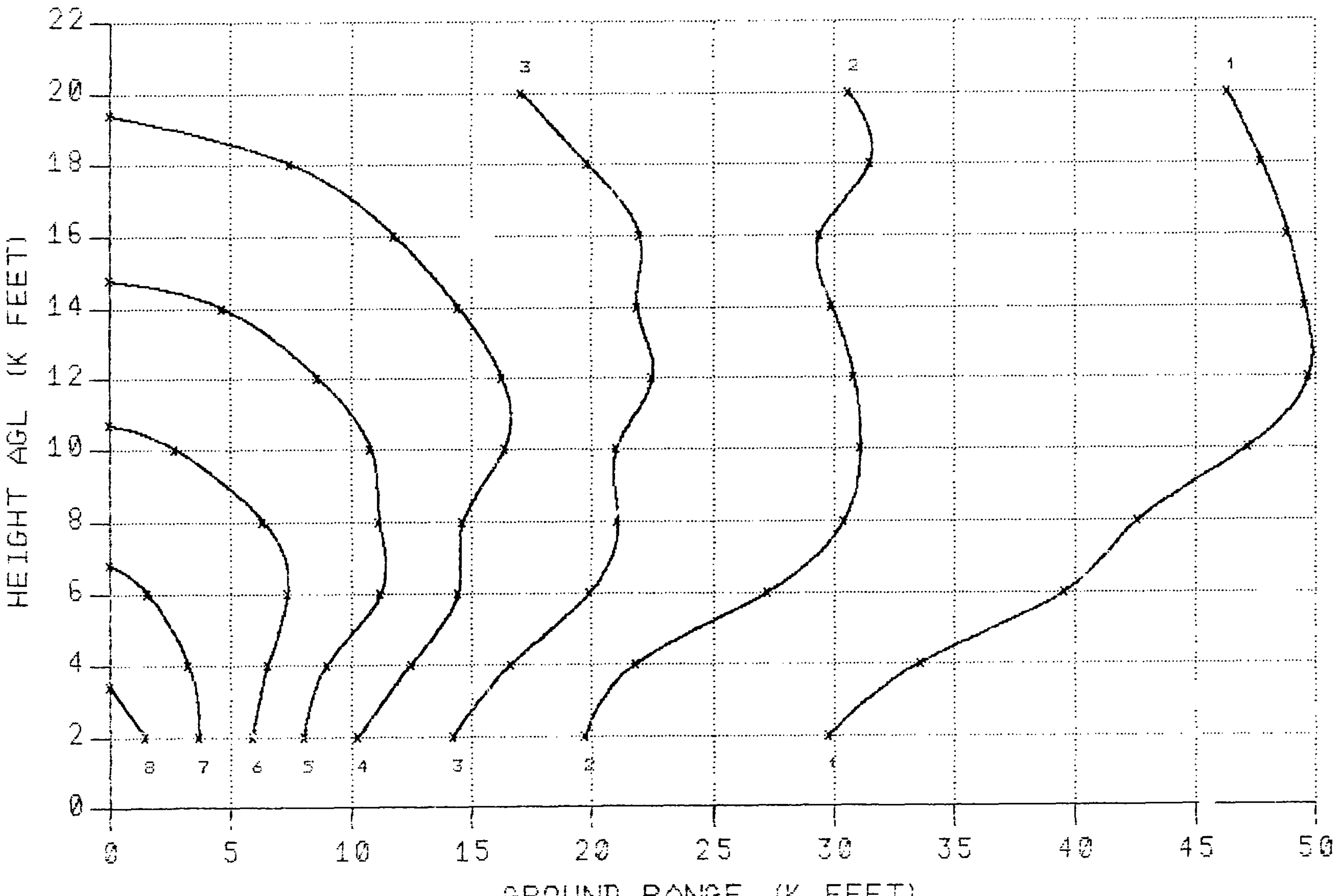
CLOUD COVER: BKN-OVC

BKGND. REFLECTANCE: 15 TO 49 PERCENT
SOLAR ELEV. ANGLE : SET @ 25 DEGREE
SURFACE VISIBILITY: 7 MILES (11.3 KM)
MIXING LYR. DEPTH : 3000 FEET



GROUND RANGE (K FEET)
CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

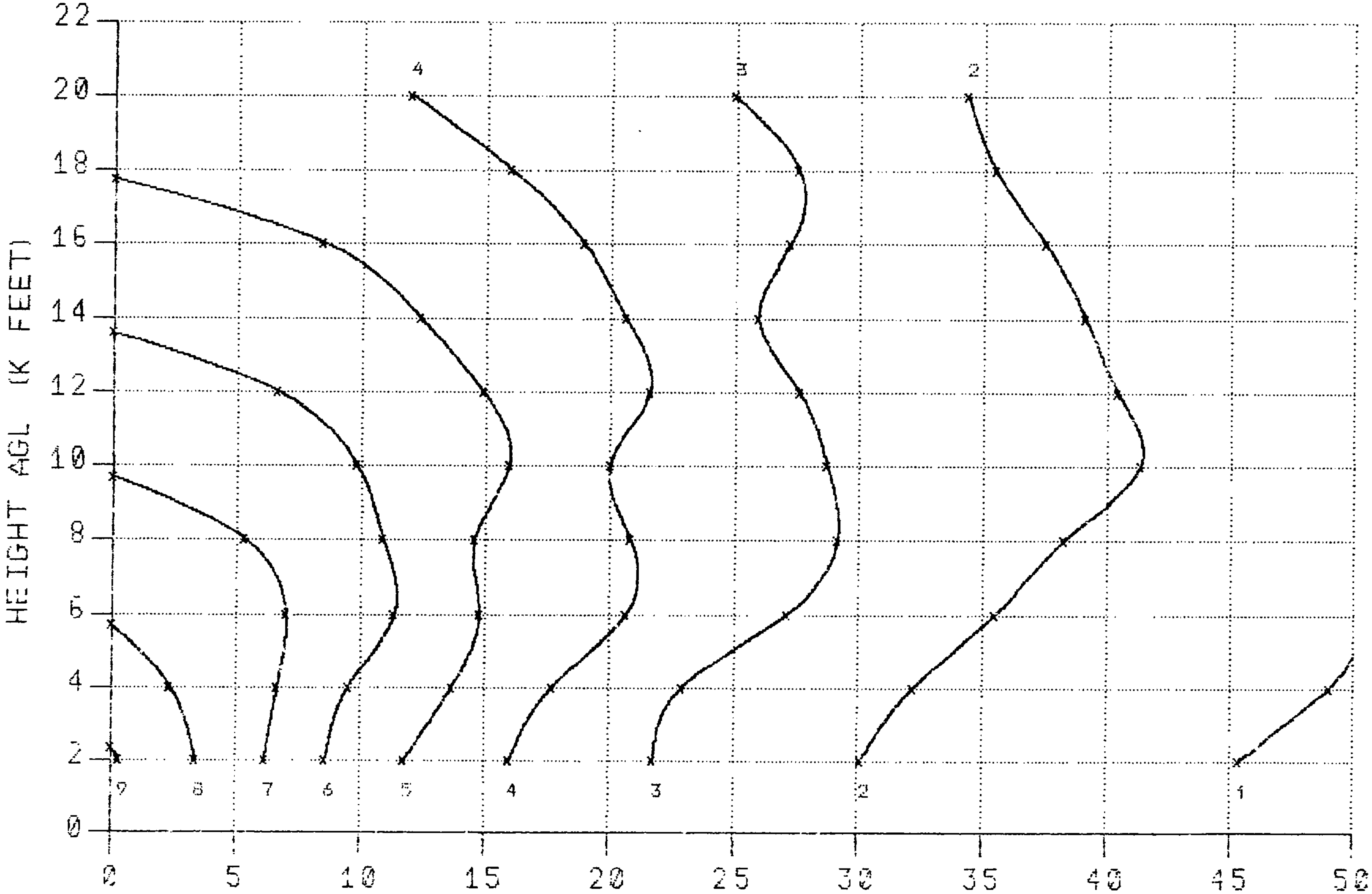
CLOUD COVER: BKN-OVC
BKGND. REFLECTANCE: 15 TO 49 PERCENT
SOLAR ELEV. ANGLE : SET @ 25 DEGREE
SURFACE VISIBILITY: 10 MILES (16.1 KM)
MIXING LYR. DEPTH : 3000 FEET



CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

CLOUD COVER: BKN-OVC

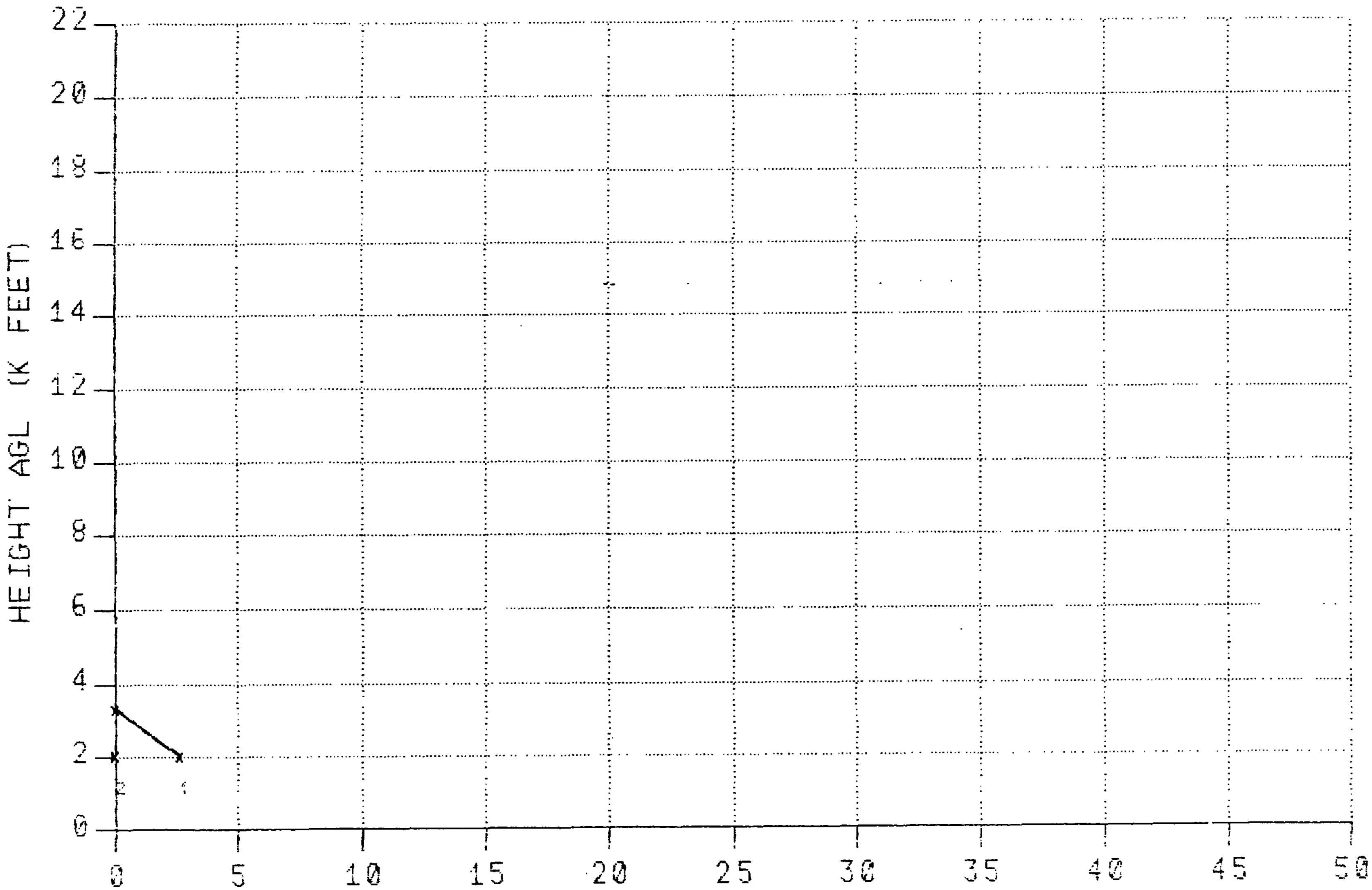
BKGND. REFLECTANCE: 15 TO 49 PERCENT
SOLAR ELEV. ANGLE : SET @ 25 DEGREE
SURFACE VISIBILITY: 15 MILES (24.1 KM)
MIXING LYR. DEPTH : 3000 FEET



GROUND RANGE (K FEET)
CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

CLOUD COVER: BKN-OVC

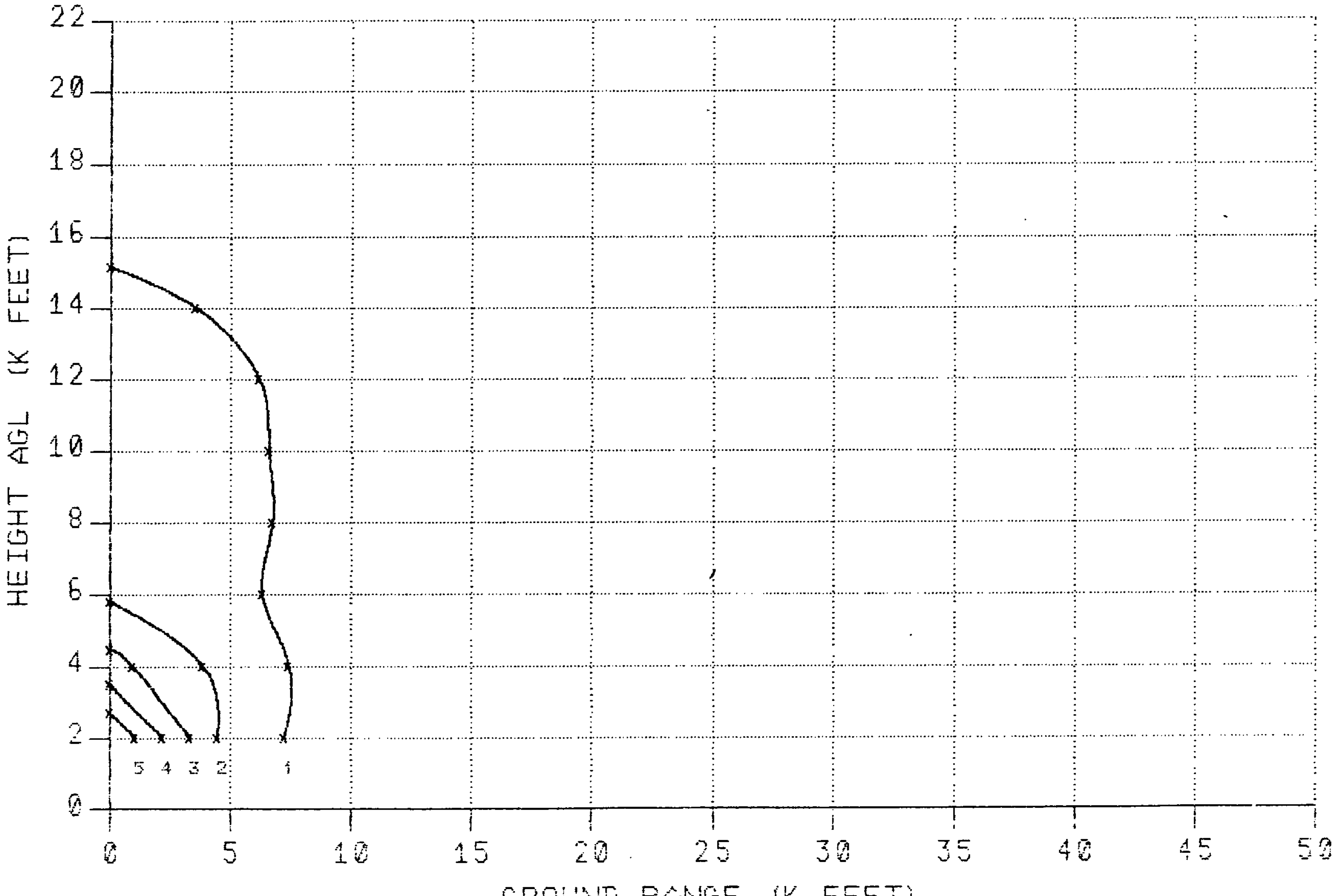
BKGND. REFLECTANCE: 15 TO 49 PERCENT
SOLAR ELEV. ANGLE : SET @ 25 DEGREE
SURFACE VISIBILITY: 1 MILES (1.6 KM)
MIXING LYR. DEPTH : 6000 FEET



CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

CLOUD COVER: BKN-OVC

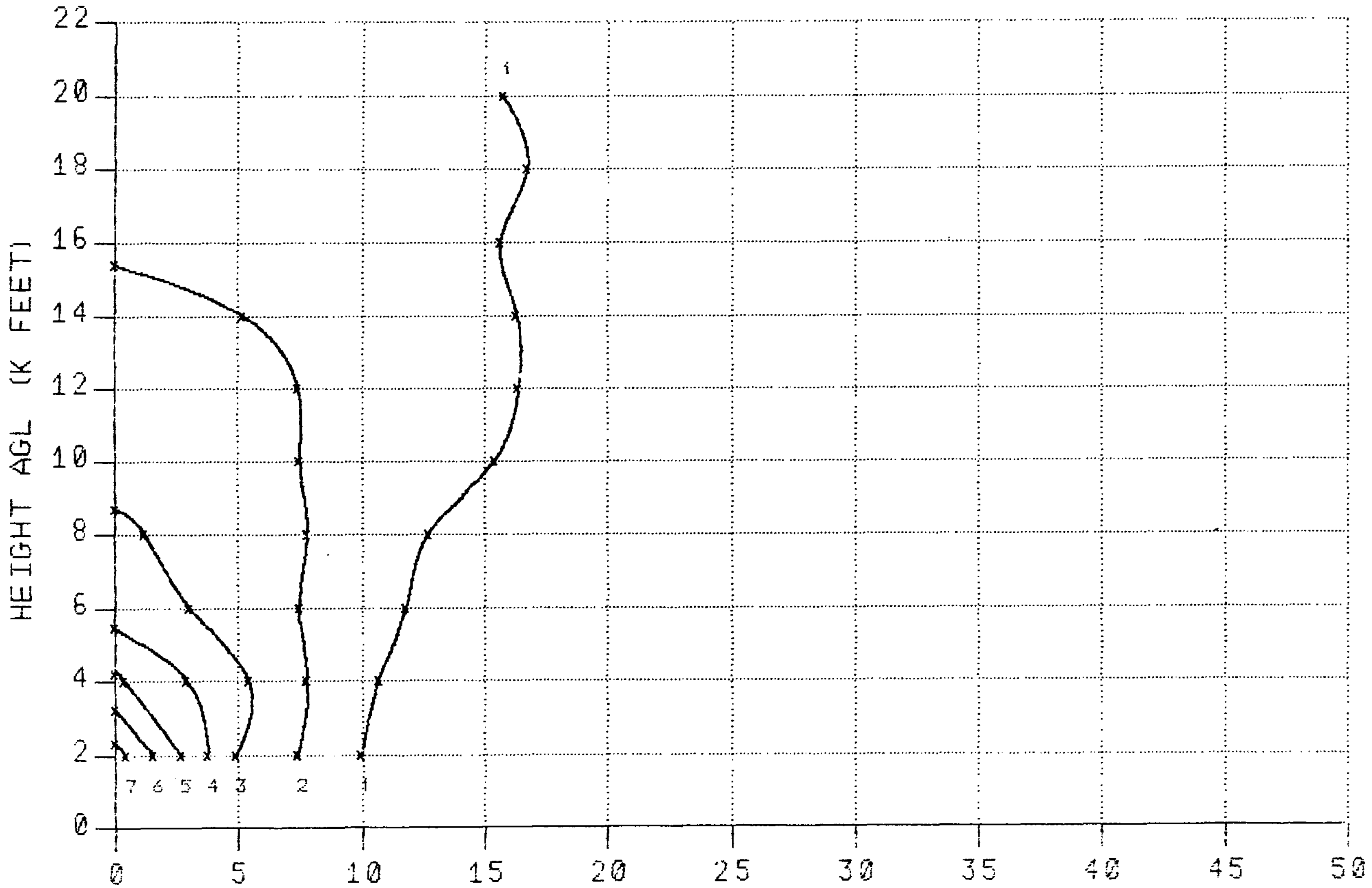
BKGND. REFLECTANCE: 15 TO 49 PERCENT
SOLAR ELEV. ANGLE : SET @ 25 DEGREE
SURFACE VISIBILITY: 3 MILES (4.8 KM)
MIXING LYR. DEPTH : 6000 FEET



CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

CLOUD COVER: BKN-OVC

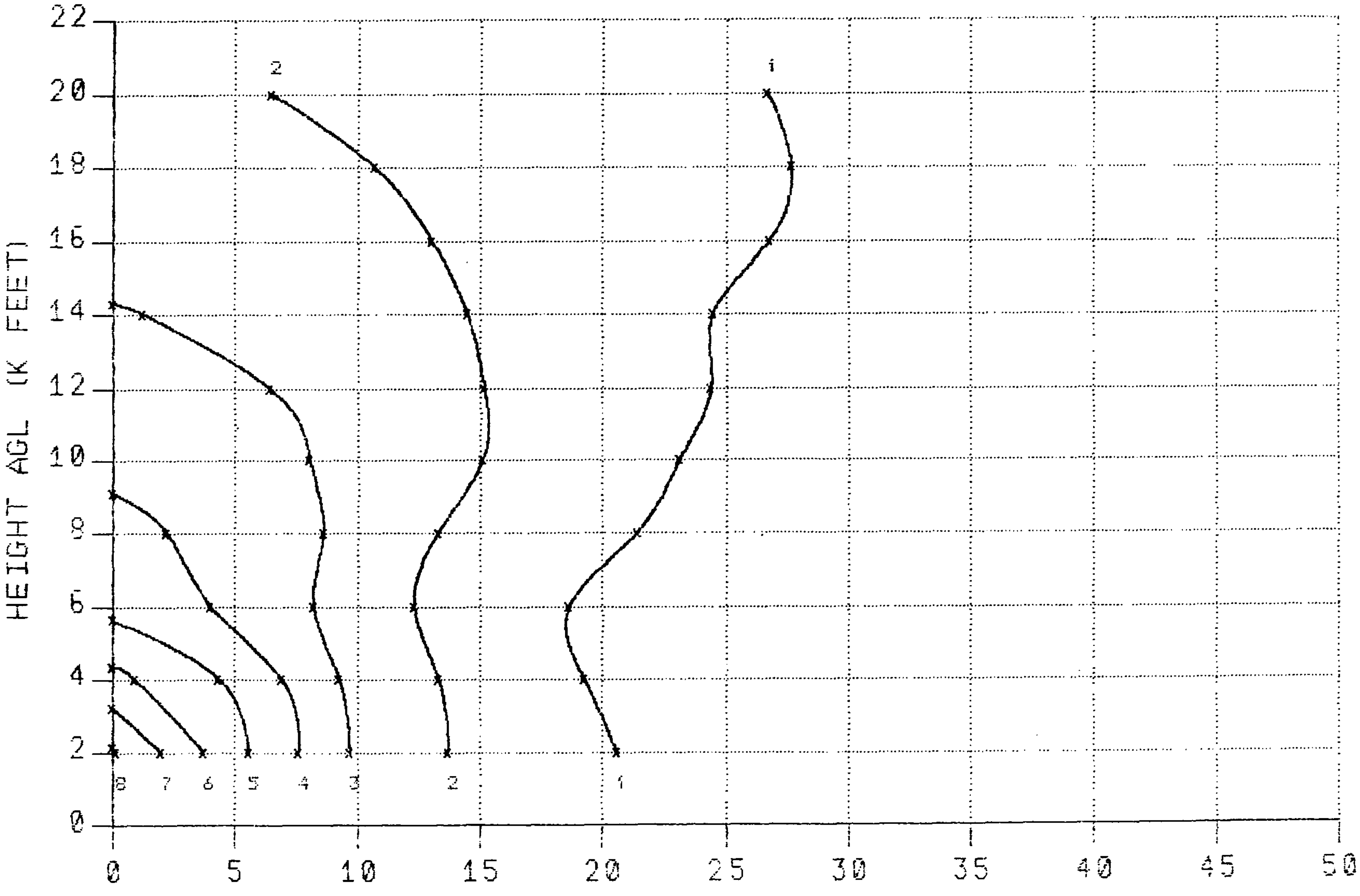
BKGND. REFLECTANCE: 15 TO 49 PERCENT
SOLAR ELEV. ANGLE : SET @ 25 DEGREE
SURFACE VISIBILITY: 5 MILES (8.0 KM)
MIXING LYR. DEPTH : 6000 FEET



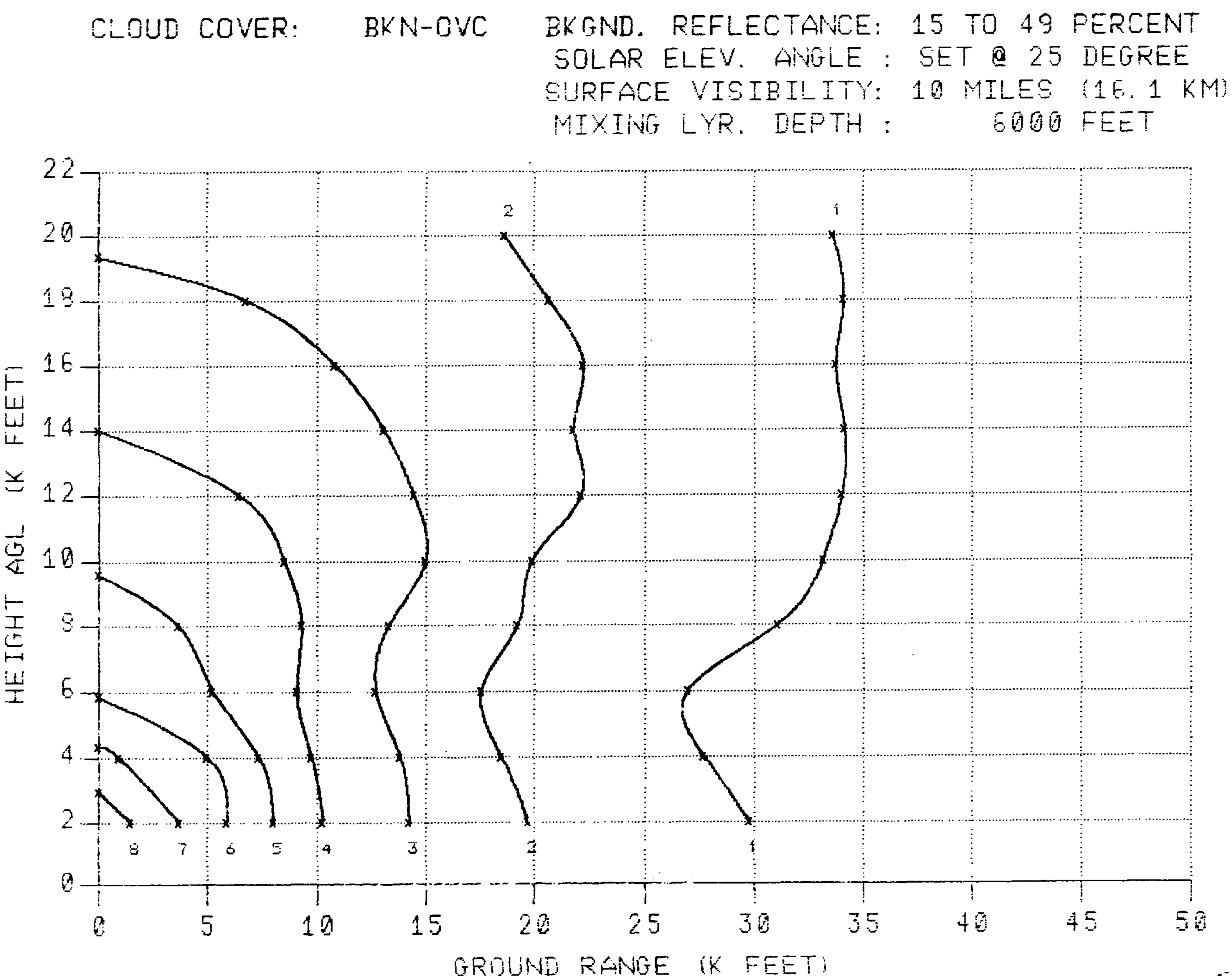
GROUND RANGE (K FEET)
CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

CLOUD COVER: BKN-OVC

BKGND. REFLECTANCE: 15 TO 49 PERCENT
SOLAR ELEV. ANGLE : SET @ 25 DEGREE
SURFACE VISIBILITY: 7 MILES (11.3 KM)
MIXING LYR. DEPTH . 6000 FEET



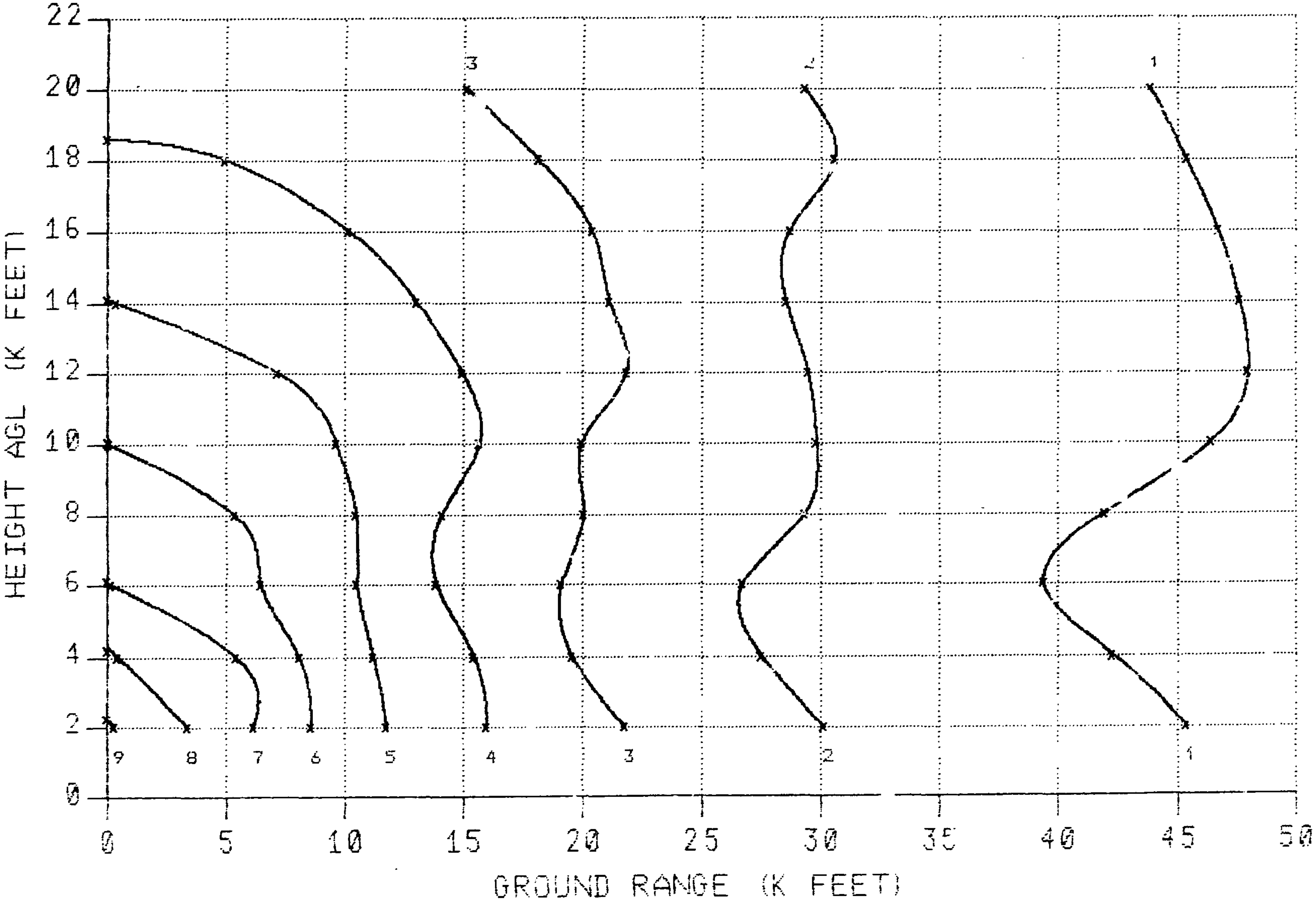
CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)



CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

CLOUD COVER: BKN-OVC

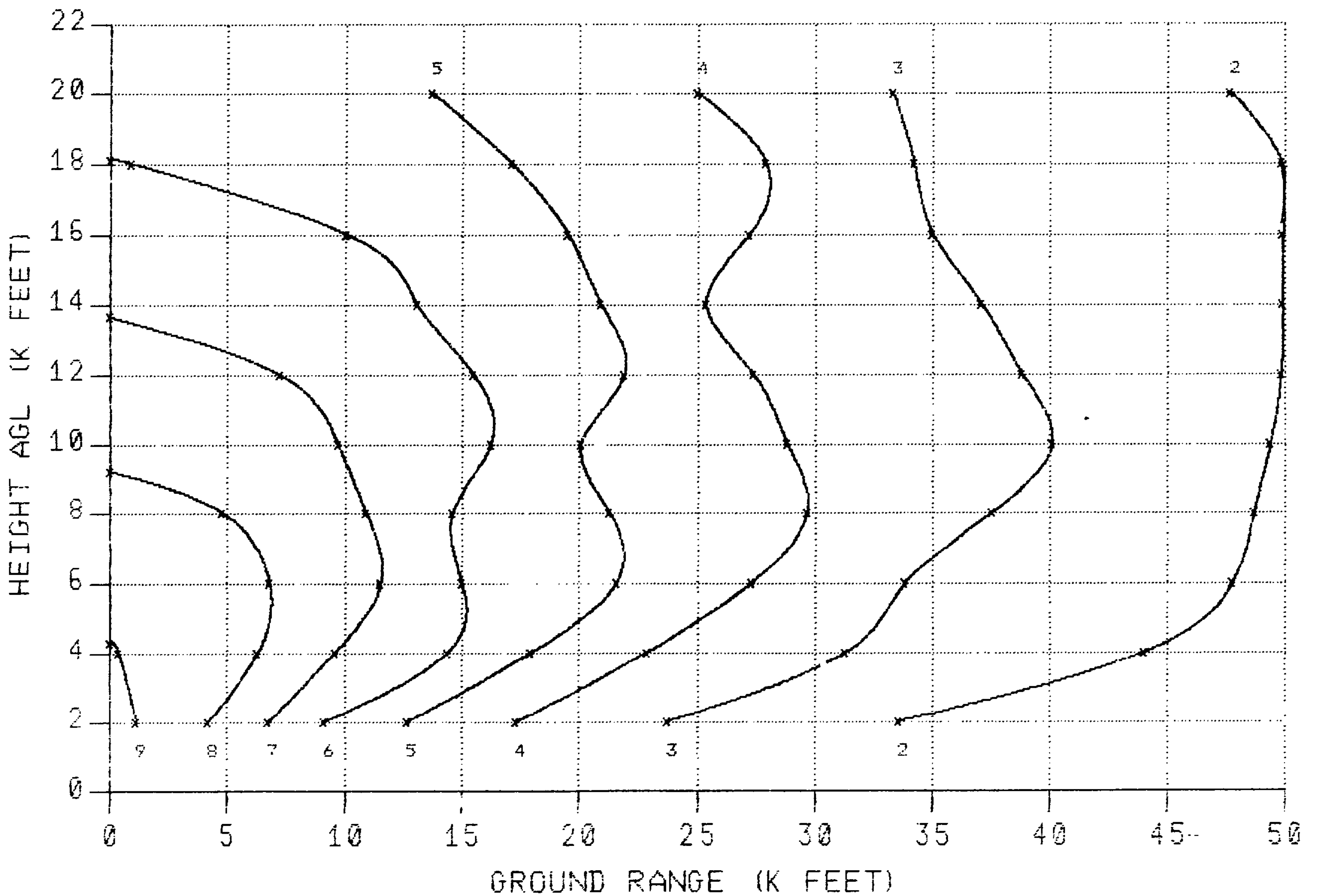
BKGND. REFLECTANCE: 15 TO 49 PERCENT
SOLAR ELEV. ANGLE : SET @ 25 DEGREE
SURFACE VISIBILITY: 15 MILES (24.1 KM)
MIXING LYR. DEPTH : 6000 FEET



CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

CLOUD COVER: BKN-OVC

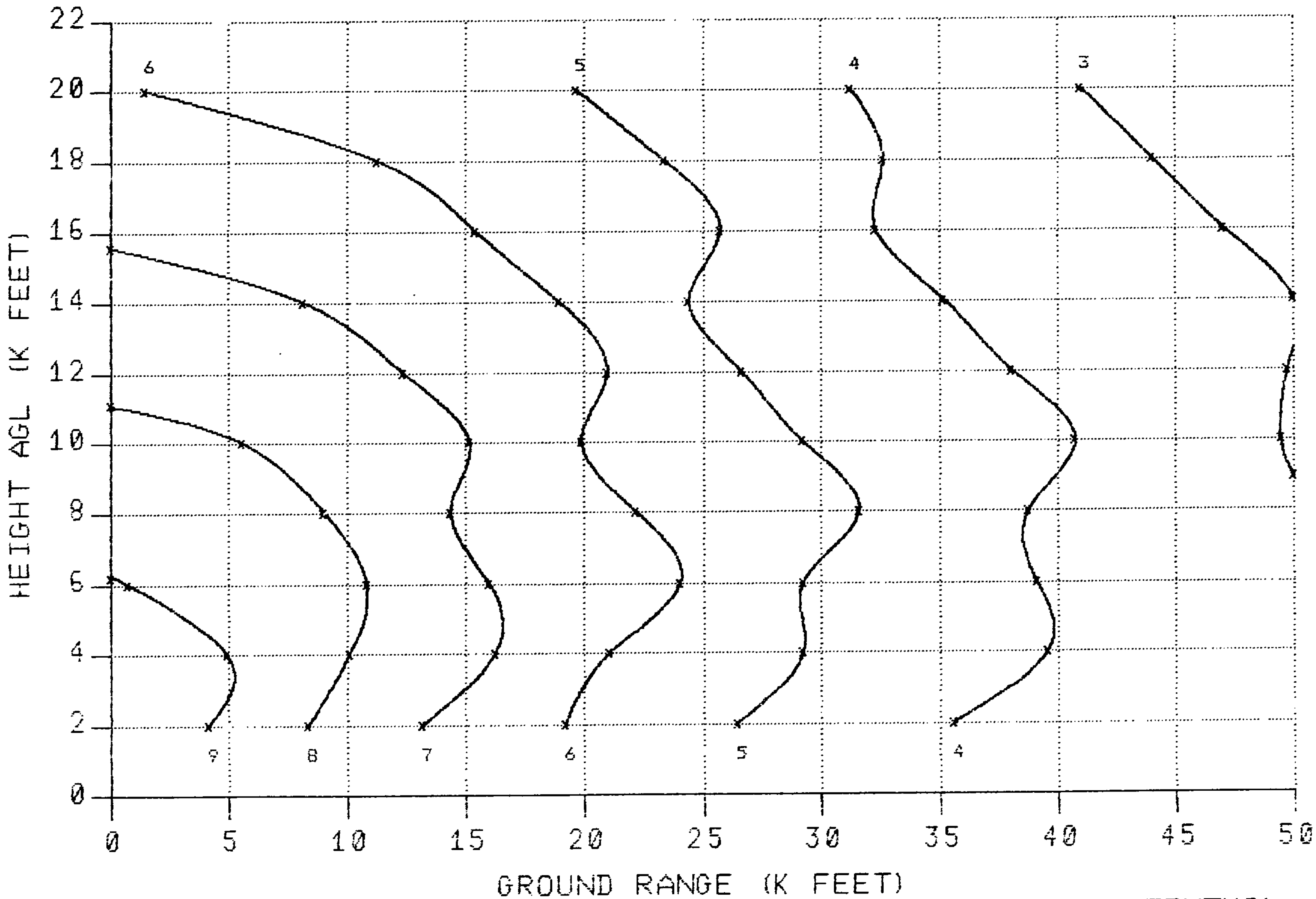
BKGND. REFLECTANCE: 50 TO 99 PERCENT
SOLAR ELEV. ANGLE : SET @ 25 DEGREE
SURFACE VISIBILITY: 1 MILE (1.6 KM)
MIXING LYR. DEPTH : BELOW 50 FEET



CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

CLOUD COVER: BKN-OVC

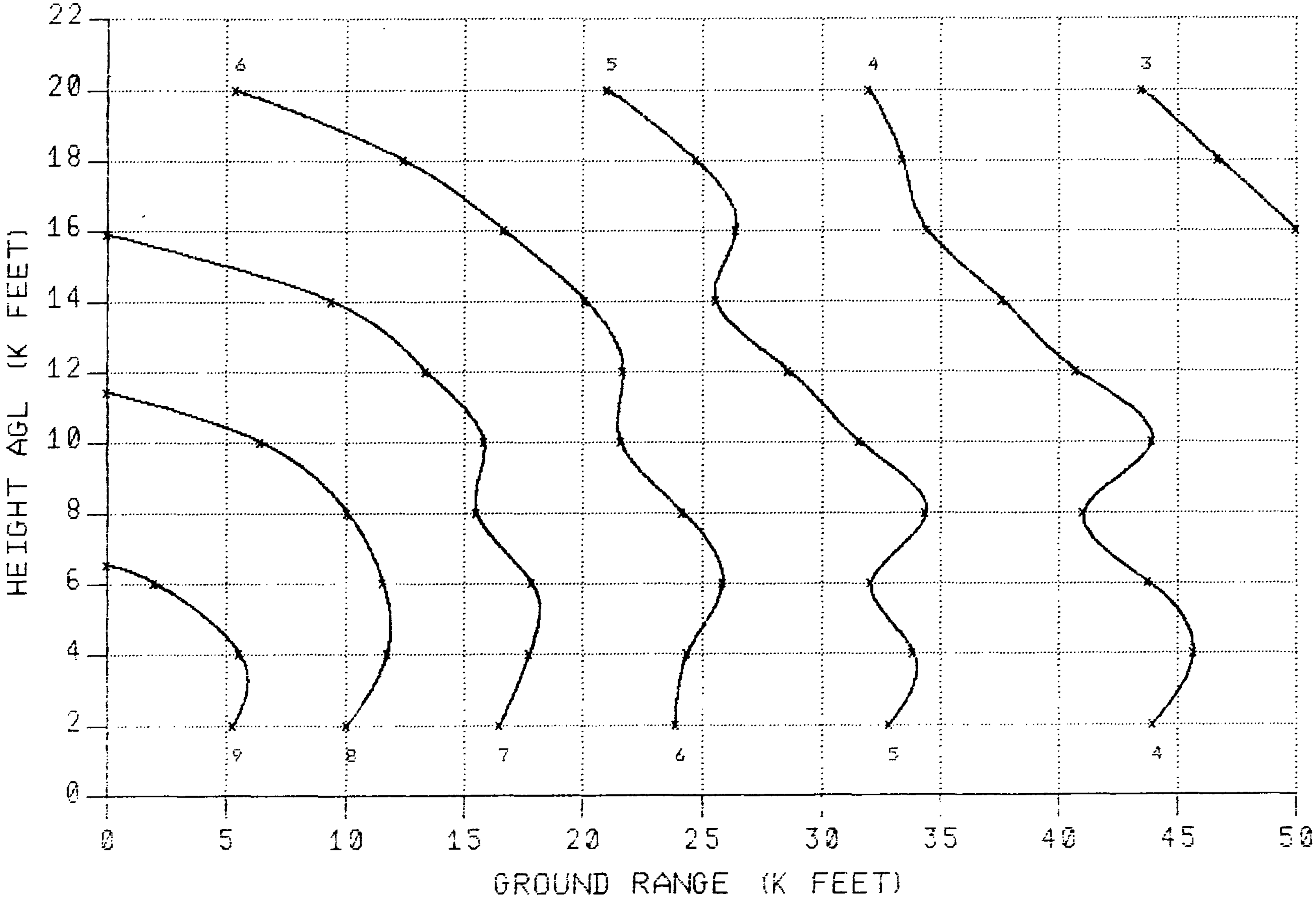
BKGND. REFLECTANCE: 50 TO 99 PERCENT
SOLAR ELEV. ANGLE : SET @ 25 DEGREE
SURFACE VISIBILITY: 3 MILES (4.8 KM)
MIXING LYR. DEPTH : BELOW 50 FEET



CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

CLOUD COVER: BKN-OVC

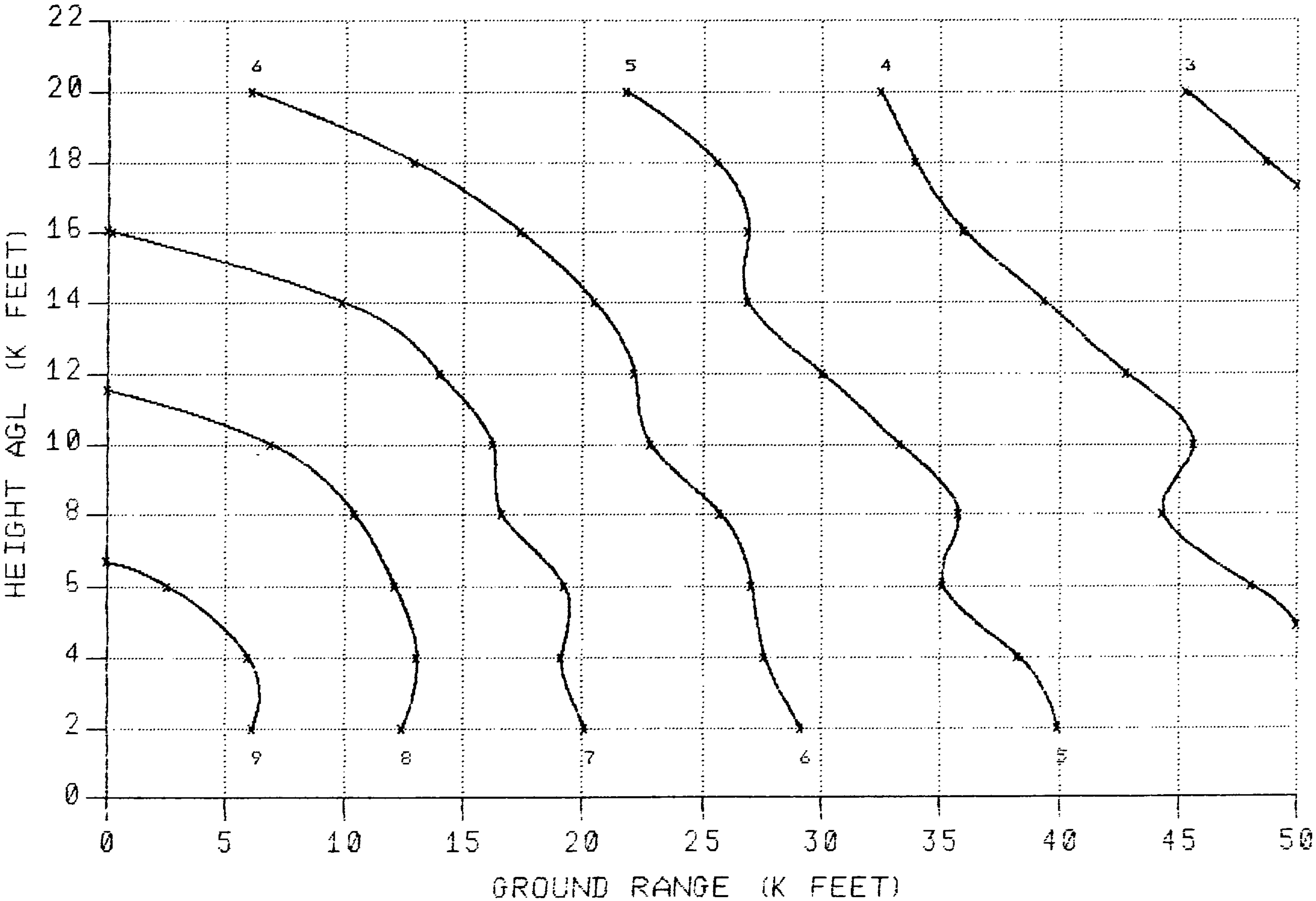
BKGND. REFLECTANCE: 50 TO 99 PERCENT
SOLAR ELEV. ANGLE : SET @ 25 DEGREE
SURFACE VISIBILITY: 5 MILES (8.0 KM)
MIXING LYR. DEPTH : BELOW 50 FEET



CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

CLOUD COVER: BKN-OVC

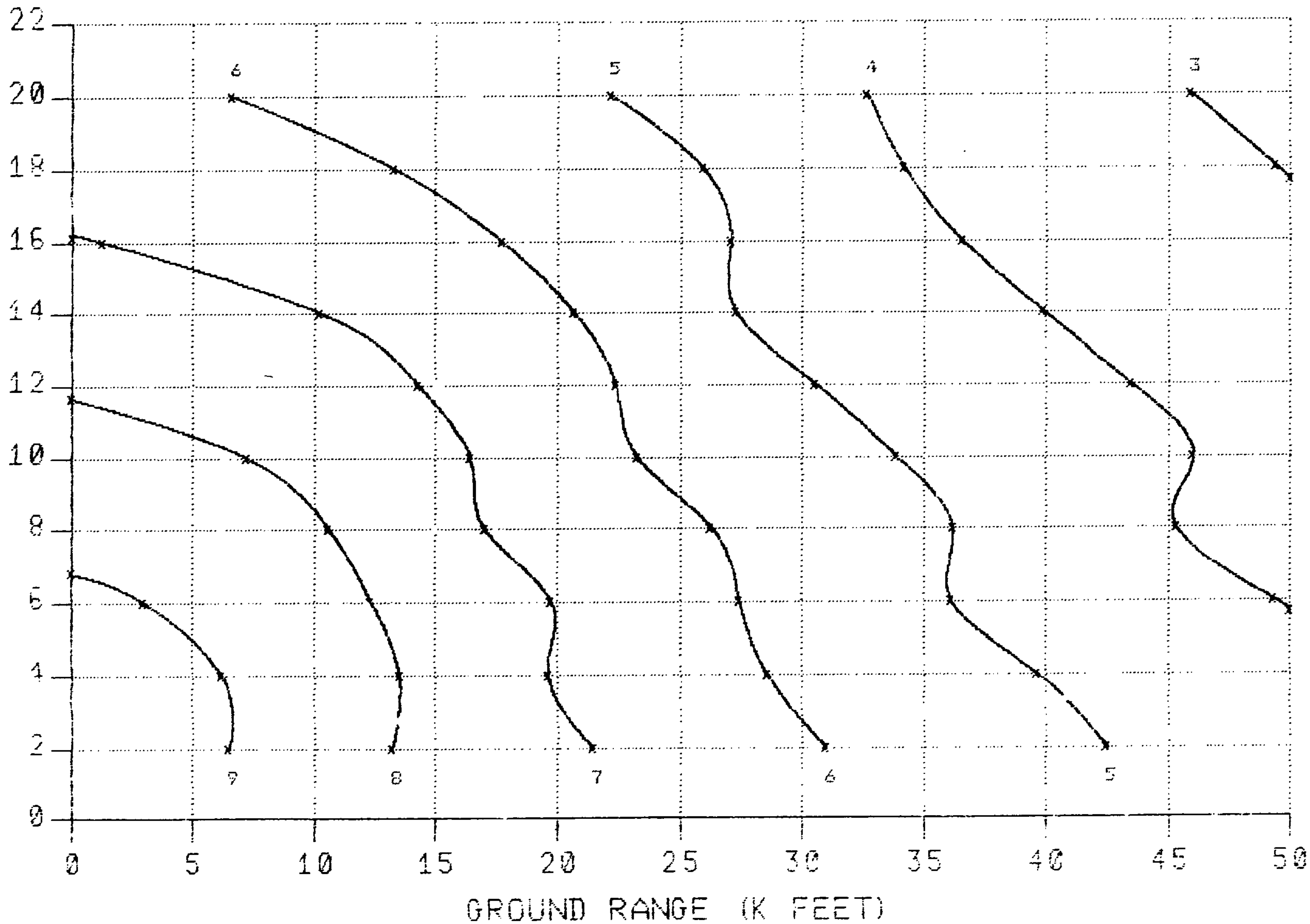
BKGND. REFLECTANCE: 50 TO 99 PERCENT
SOLAR ELEV. ANGLE : SET @ 25 DEGREE
SURFACE VISIBILITY: 7 MILES (11.3 KM)
MIXING LYR. DEPTH : BELOW 50 FEET



CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

CLOUD COVER: BKN-OVC

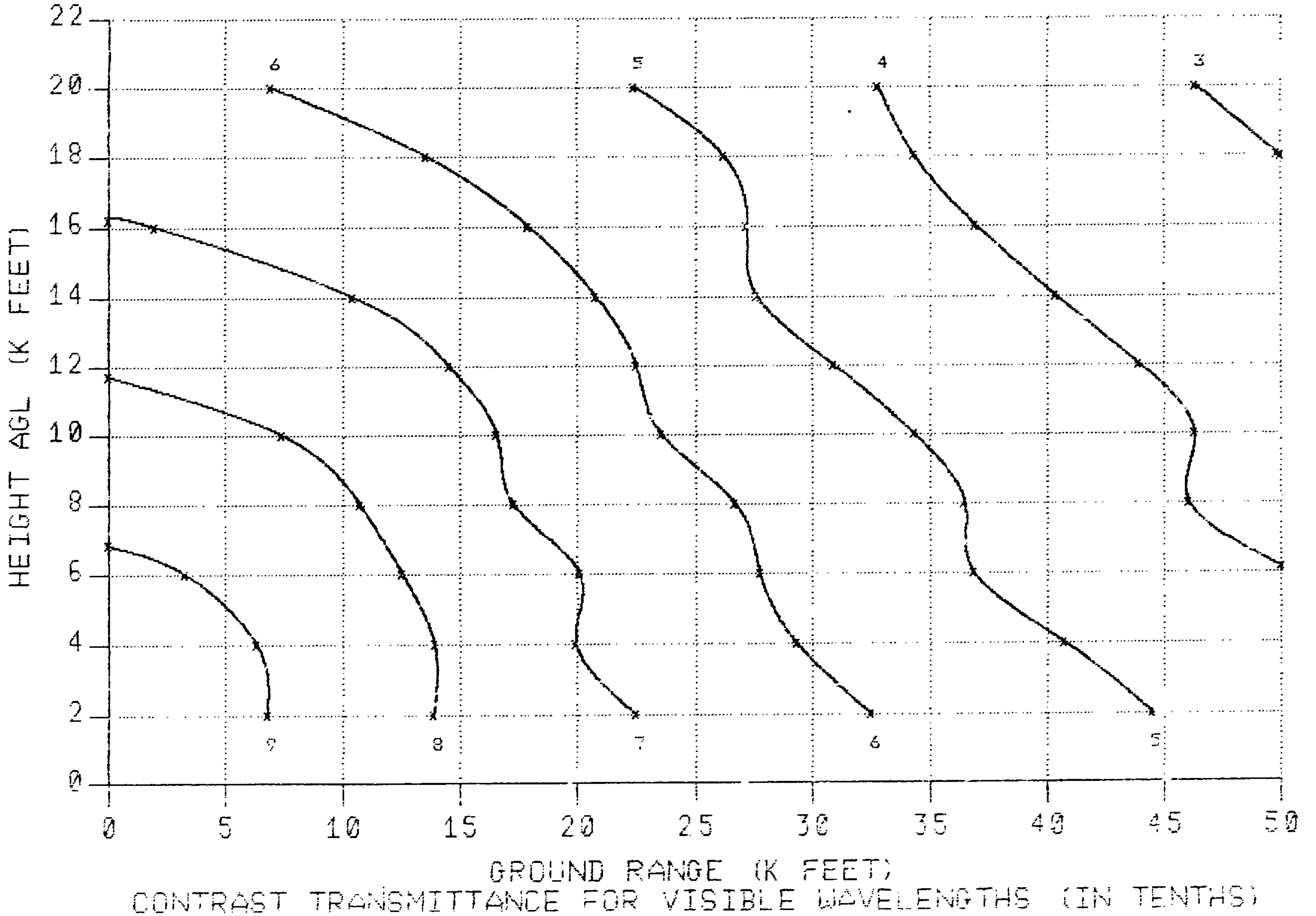
BKGND. REFLECTANCE: 50 TO 99 PERCENT
SOLAR ELEV. ANGLE : SET @ 25 DEGREE
SURFACE VISIBILITY: 10 MILES (16.1 KM)
MIXING LYR. DEPTH : BELOW 50 FEET



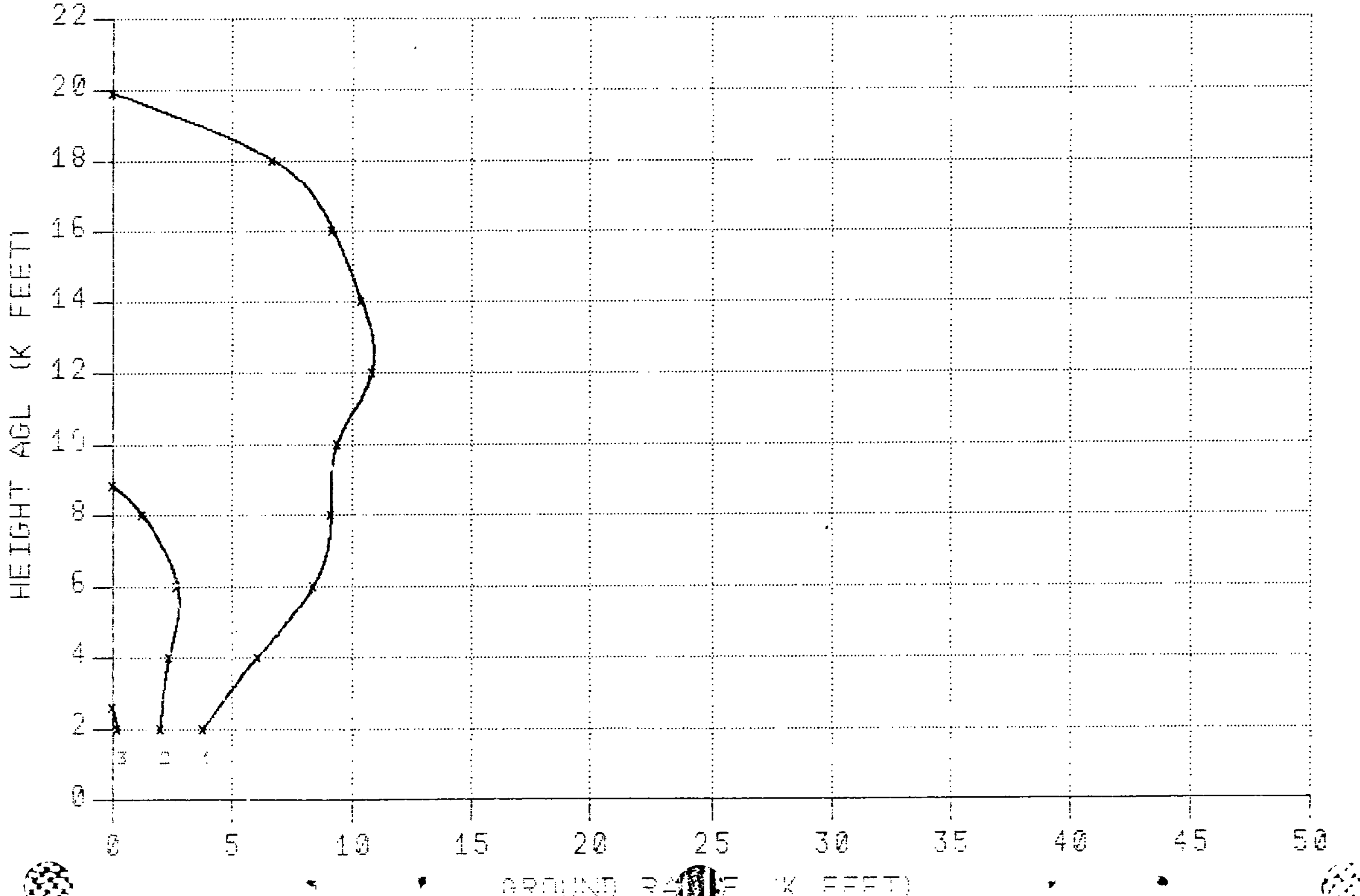
CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

CLOUD COVER: BKN-OVC

BKGND. REFLECTANCE: 50 TO 99 PERCENT
SOLAR ELEV. ANGLE : SET @ 25 DEGREE
SURFACE VISIBILITY: 15 MILES (24.1 KM)
MIXING LYR. DEPTH : BELOW 50 FEET

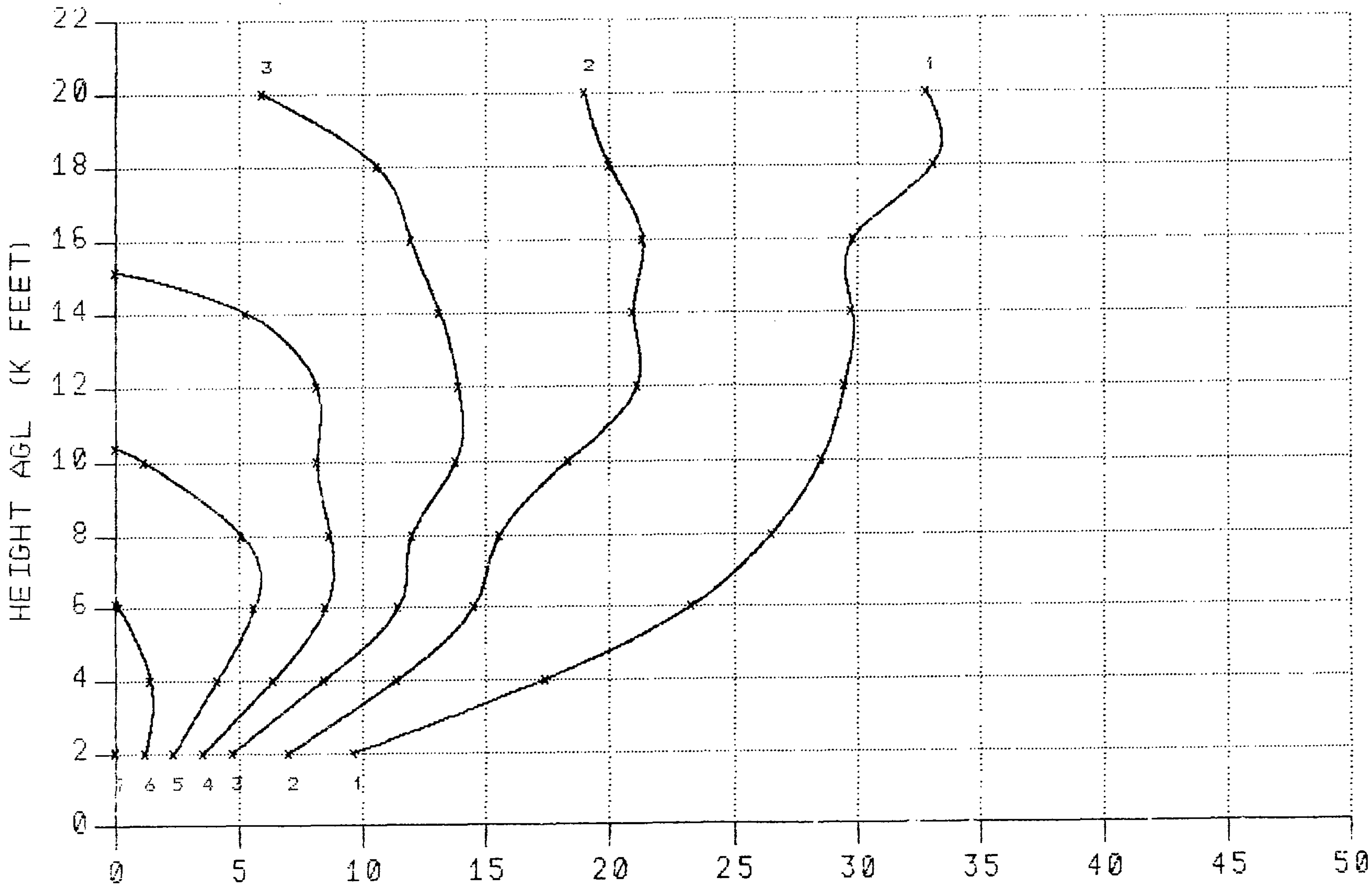


CLOUD COVER: BKN-OVC BKGND. REFLECTANCE: 50 TO 99 PERCENT
SOLAR ELEV. ANGLE : SET @ 25 DEGREE
SURFACE VISIBILITY: 1 MILE (1.6 KM)
MIXING LYR. DEPTH : 1500 FEET



CLOUD COVER: BKN-OVC

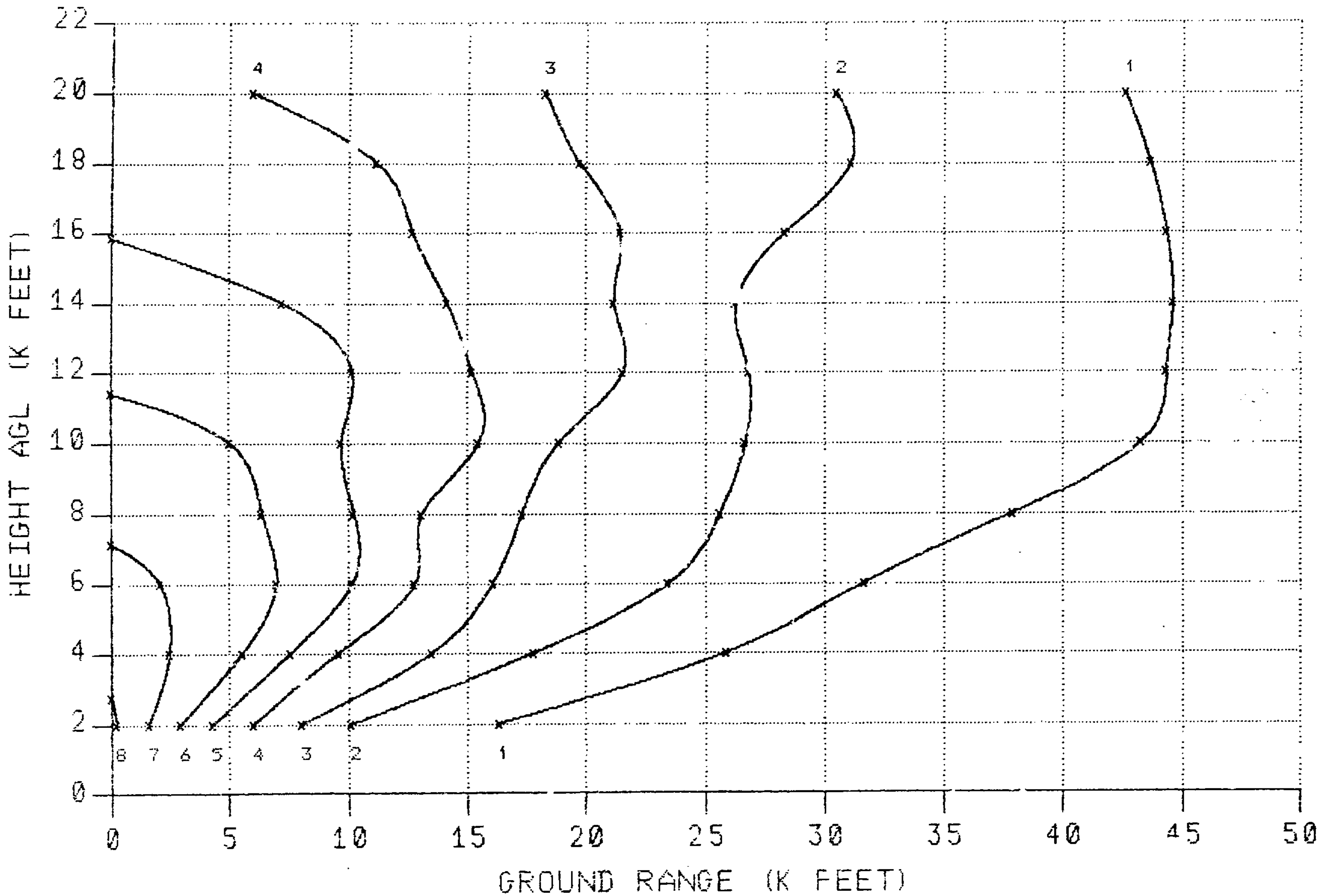
BKGND. REFLECTANCE: 50 TO 99 PERCENT
SOLAR ELEV. ANGLE : SET @ 25 DEGREE
SURFACE VISIBILITY: 3 MILES (4.8 KM)
MIXING LYR. DEPTH : 1500 FEET



GROUND RANGE (K FEET)
CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

CLOUD COVER: BKN-OVC

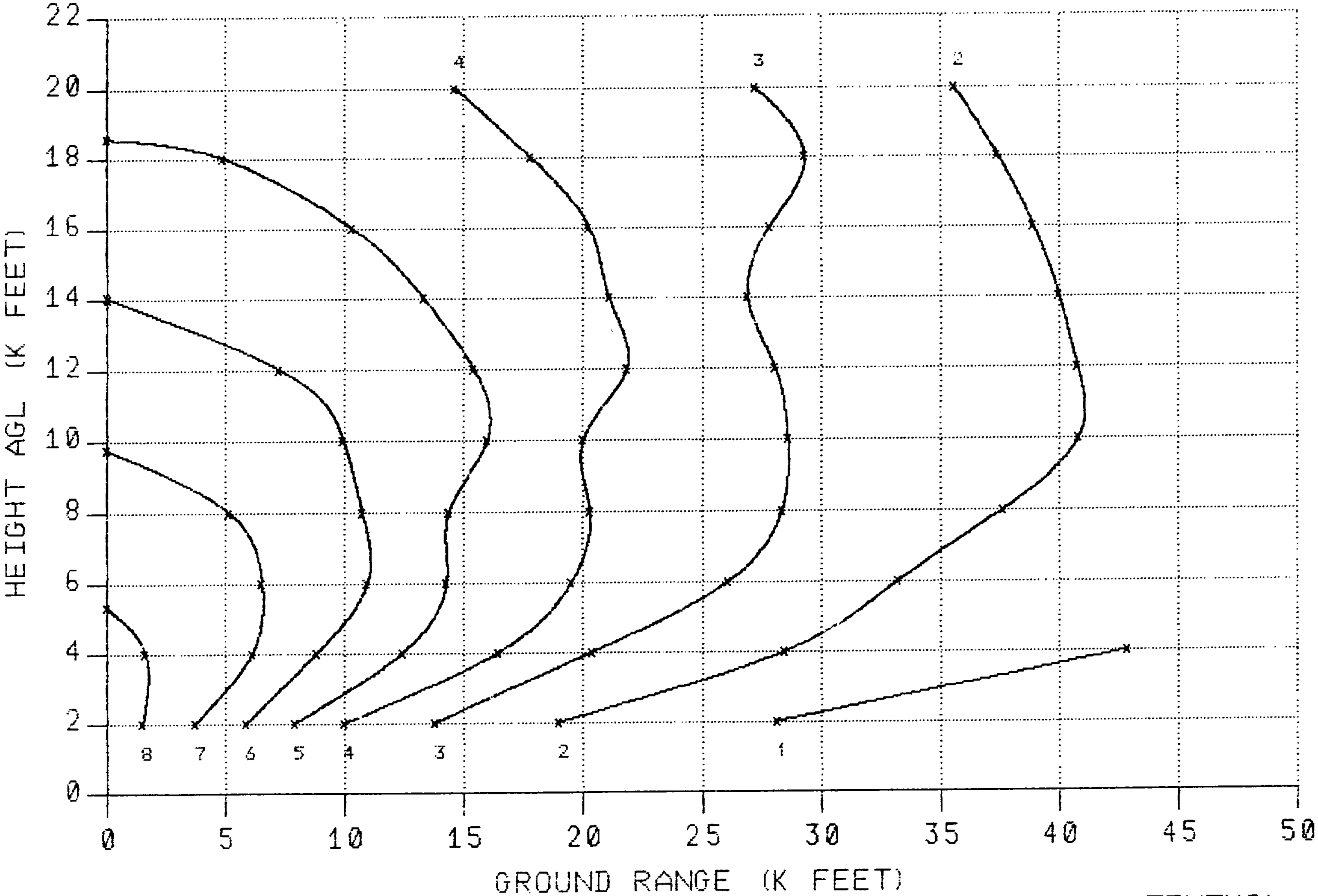
BKGND. REFLECTANCE: 50 TO 99 PERCENT
SOLAR ELEV. ANGLE : SET @ 25 DEGREE
SURFACE VISIBILITY: 5 MILES (8.0 KM)
MIXING LYR. DEPTH : 1500 FEET



CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

CLOUD COVER: BKN-OVC

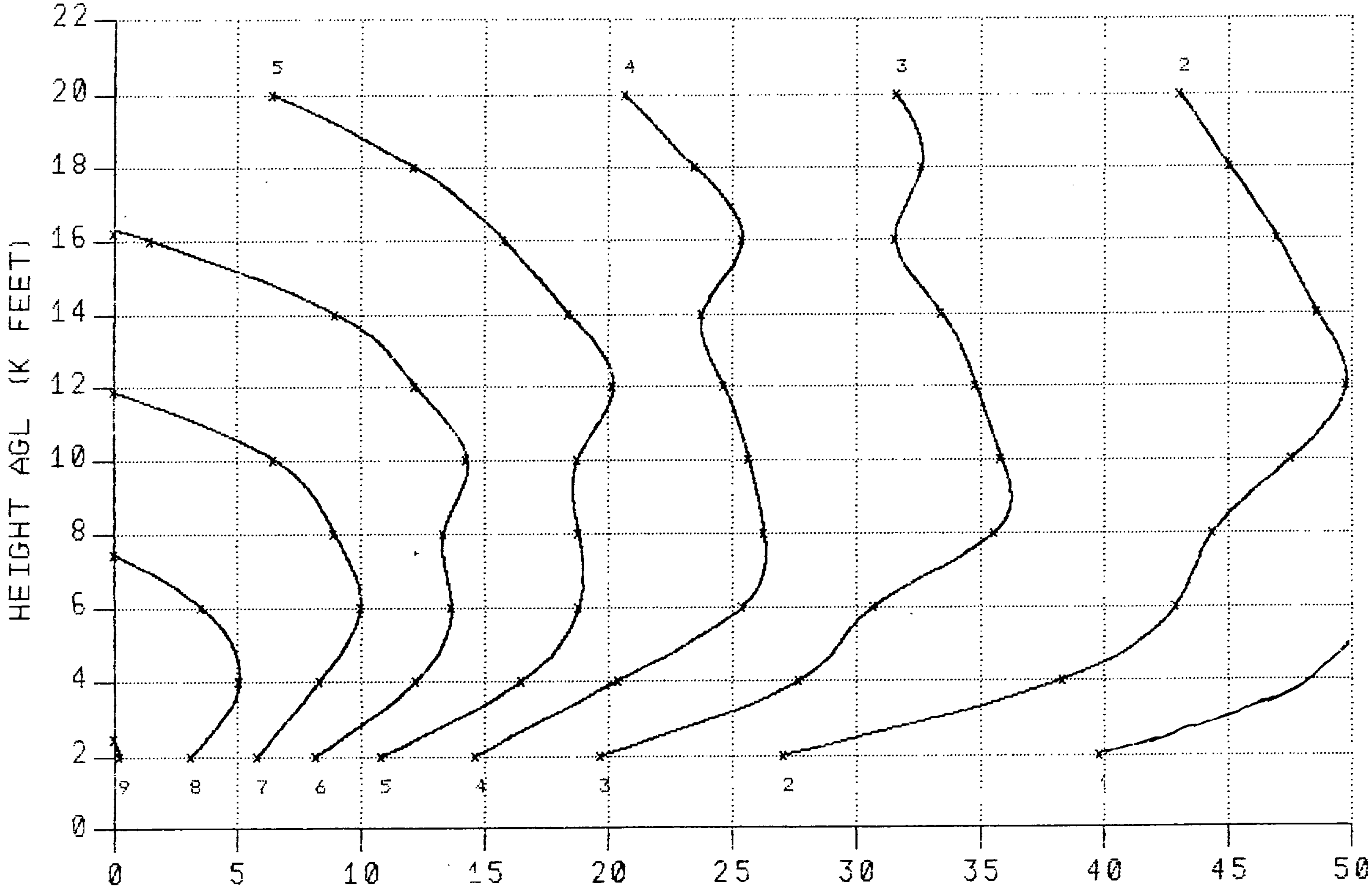
BKGND. REFLECTANCE: 50 TO 99 PERCENT
SOLAR ELEV. ANGLE : SET @ 25 DEGREE
SURFACE VISIBILITY: 7 MILES (11.3 KM)
MIXING LYR. DEPTH : 1500 FEET



CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

CLOUD COVER: BKN-OVC

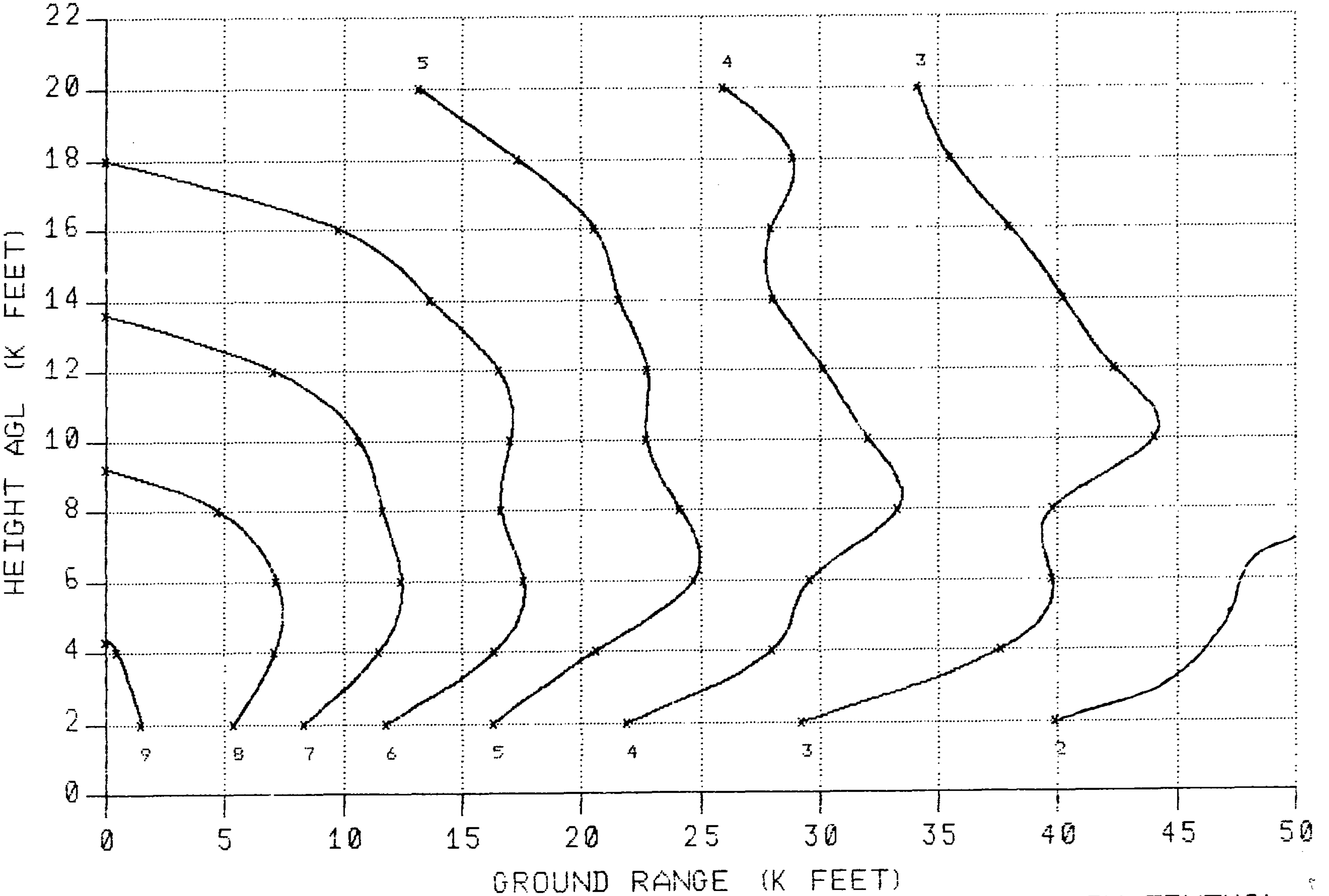
BKGND. REFLECTANCE: 50 TO 99 PERCENT
SOLAR ELEV. ANGLE : SET @ 25 DEGREE
SURFACE VISIBILITY: 10 MILES (16.1 KM)
MIXING LYR. DEPTH : 1500 FEET



GROUND RANGE (K FEET)
CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

CLOUD COVER: BKN-OVC

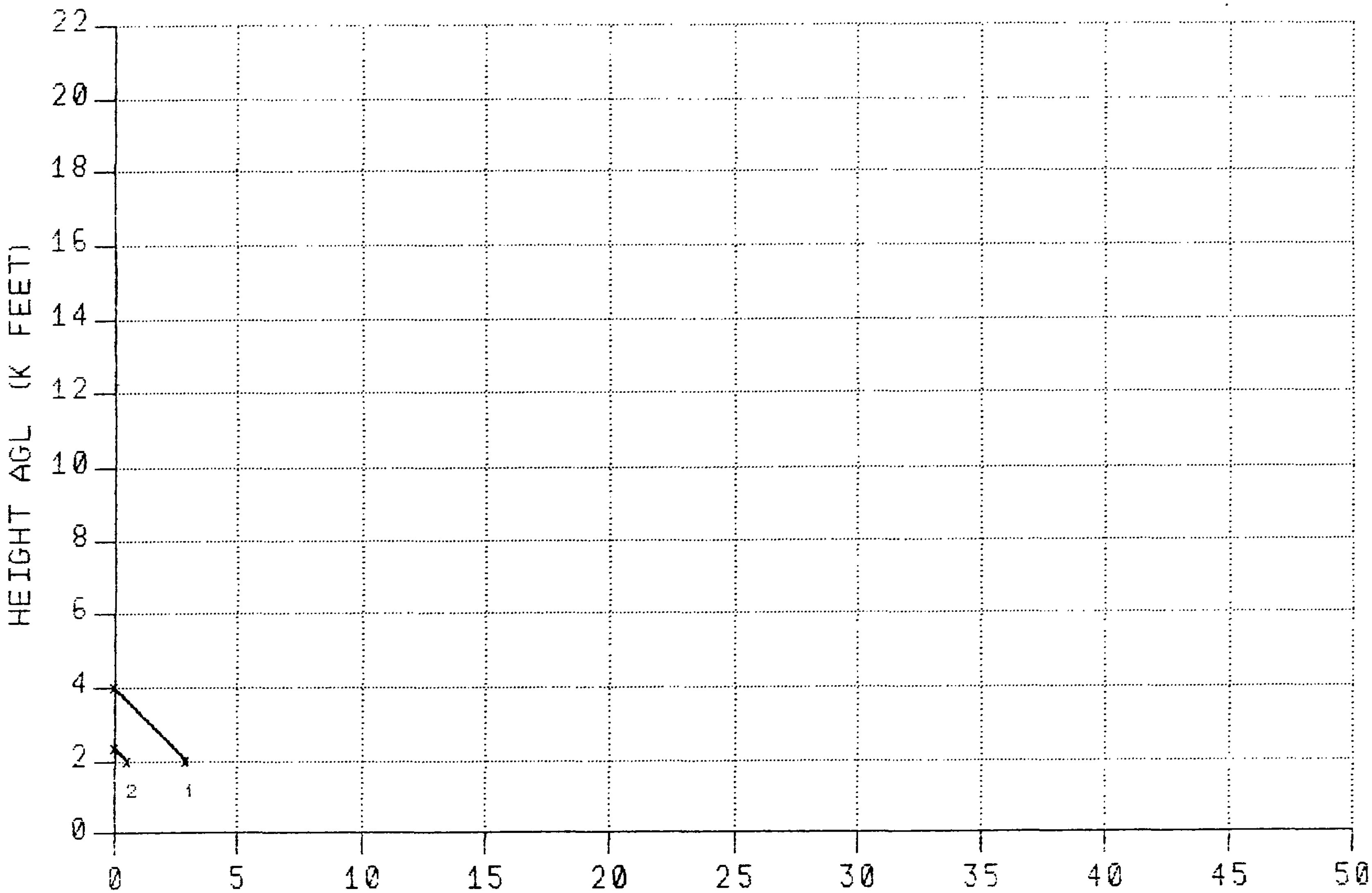
BKGND. REFLECTANCE: 50 TO 99 PERCENT
SOLAR ELEV. ANGLE : SET @ 25 DEGREE
SURFACE VISIBILITY: 15 MILES (24.1 KM)
MIXING LYR. DEPTH : 1500 FEET



CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

CLOUD COVER: BKN-OVC

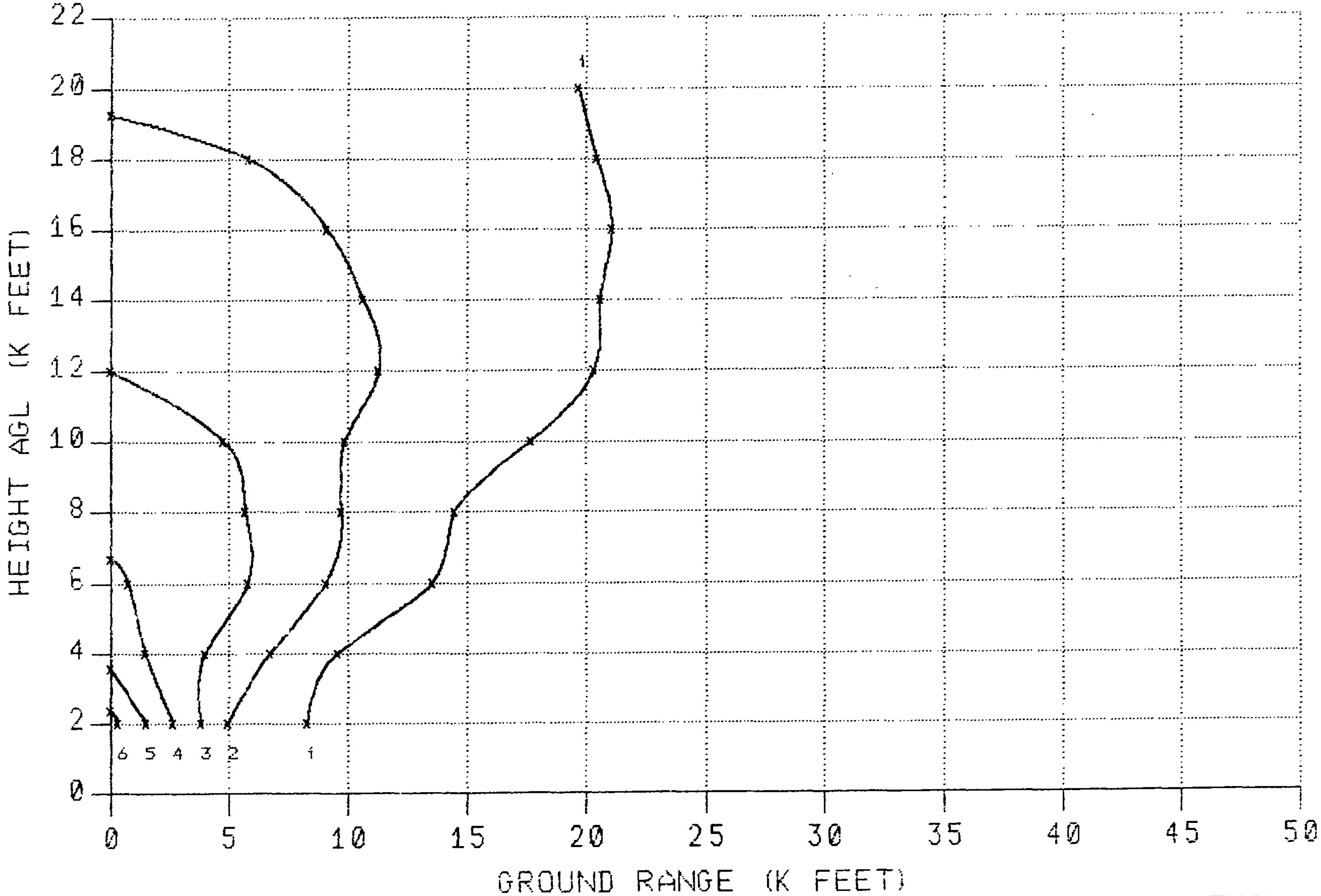
BKGND. REFLECTANCE: 50 TO 99 PERCENT
SOLAR ELEV. ANGLE : SET @ 25 DEGREE
SURFACE VISIBILITY: 1 MILE (1.6 KM)
MIXING LYR. DEPTH : 3000 FEET



GROUND RANGE (K FEET)
CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

CLOUD COVER: BKN-OVC

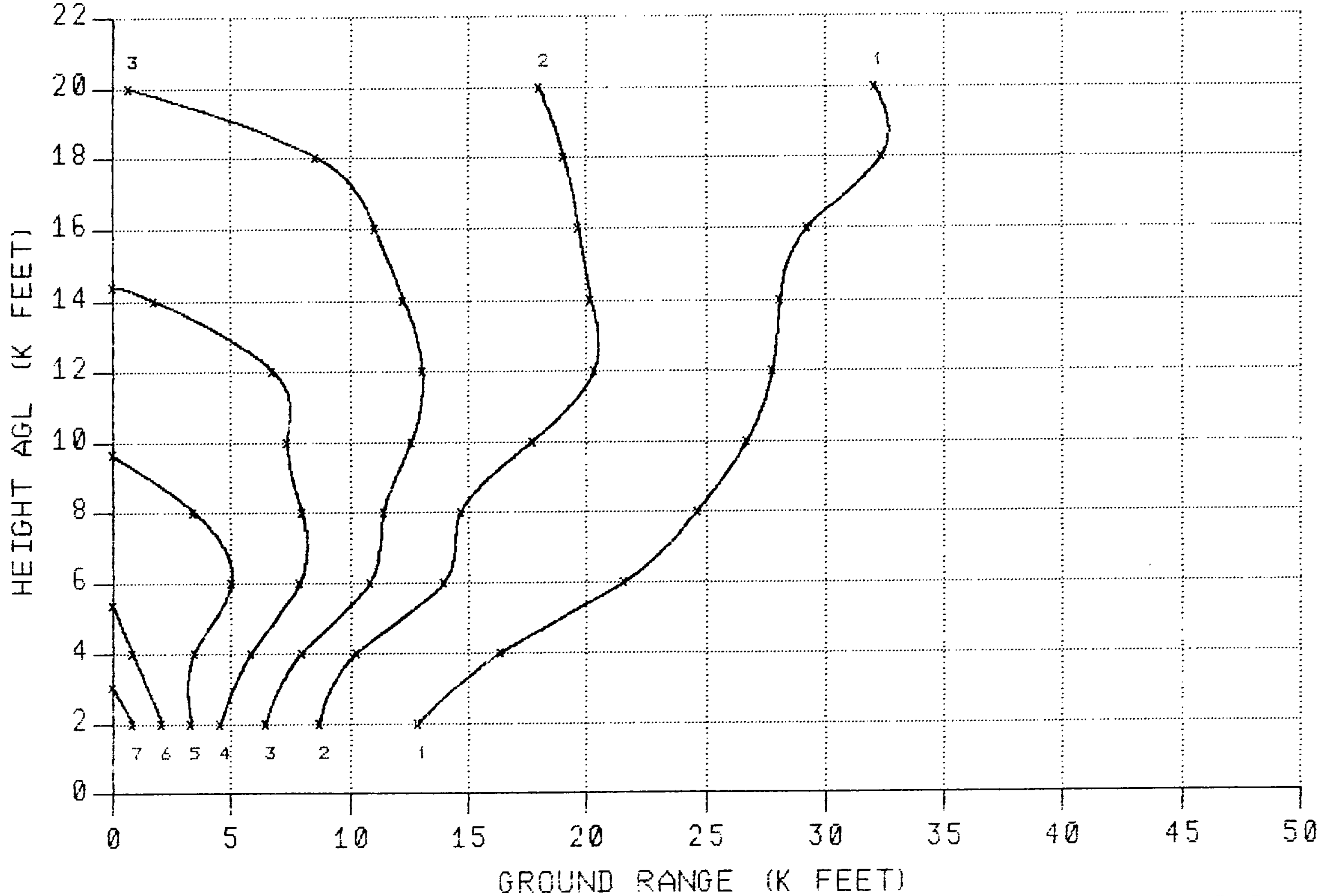
BKGND. REFLECTANCE: 50 TO 99 PERCENT
SOLAR ELEV. ANGLE : SET @ 25 DEGREE
SURFACE VISIBILITY: 3 MILES (4.8 KM)
MIXING LYR. DEPTH : 3000 FEET



CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

CLOUD COVER: BKN-OVC

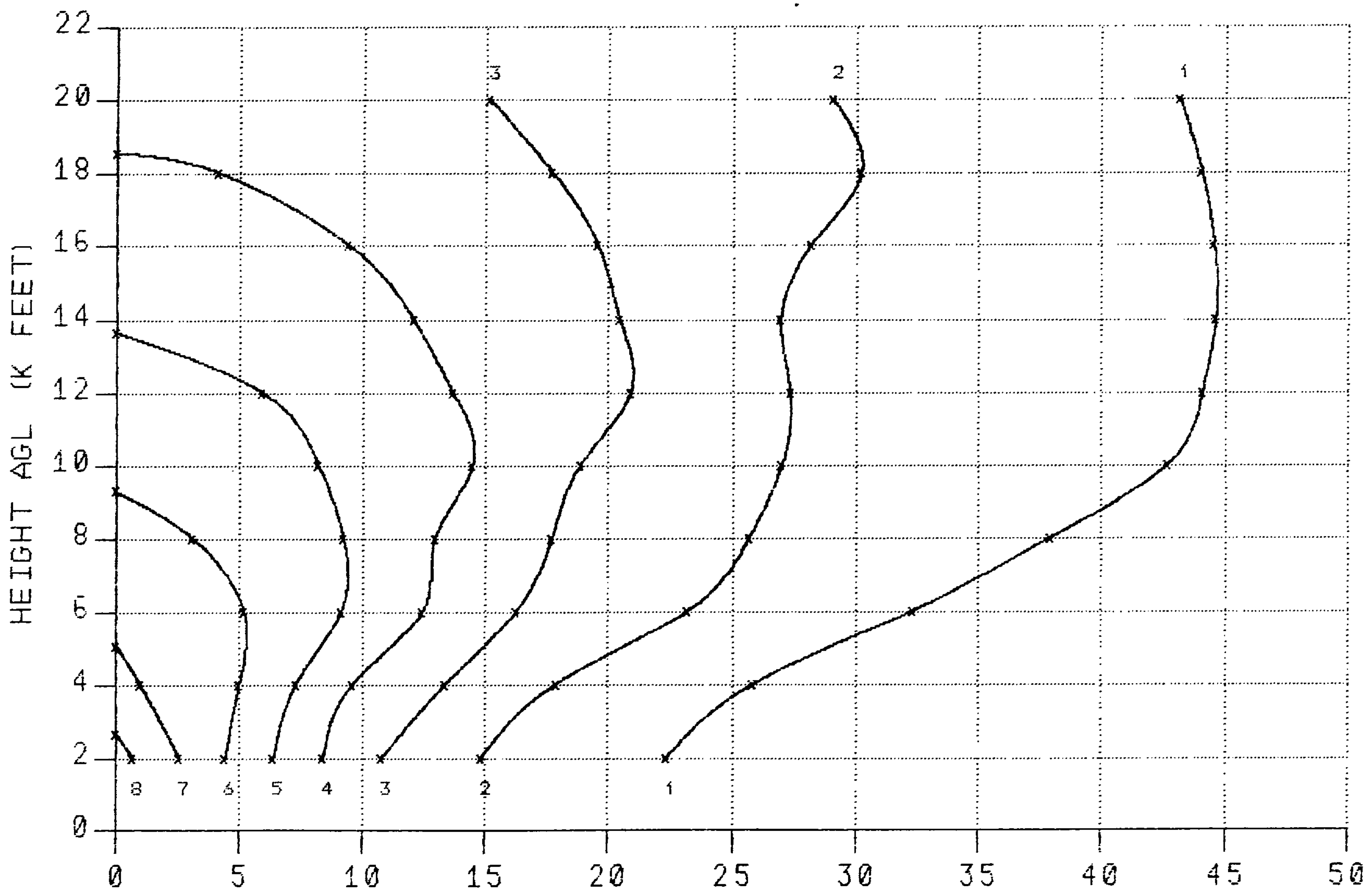
BKGND. REFLECTANCE: 50 TO 99 PERCENT
SOLAR ELEV. ANGLE : SET @ 25 DEGREE
SURFACE VISIBILITY: 5 MILES (8.0 KM)
MIXING LYR. DEPTH : 3000 FEET



CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

CLOUD COVER: BKN-OVC

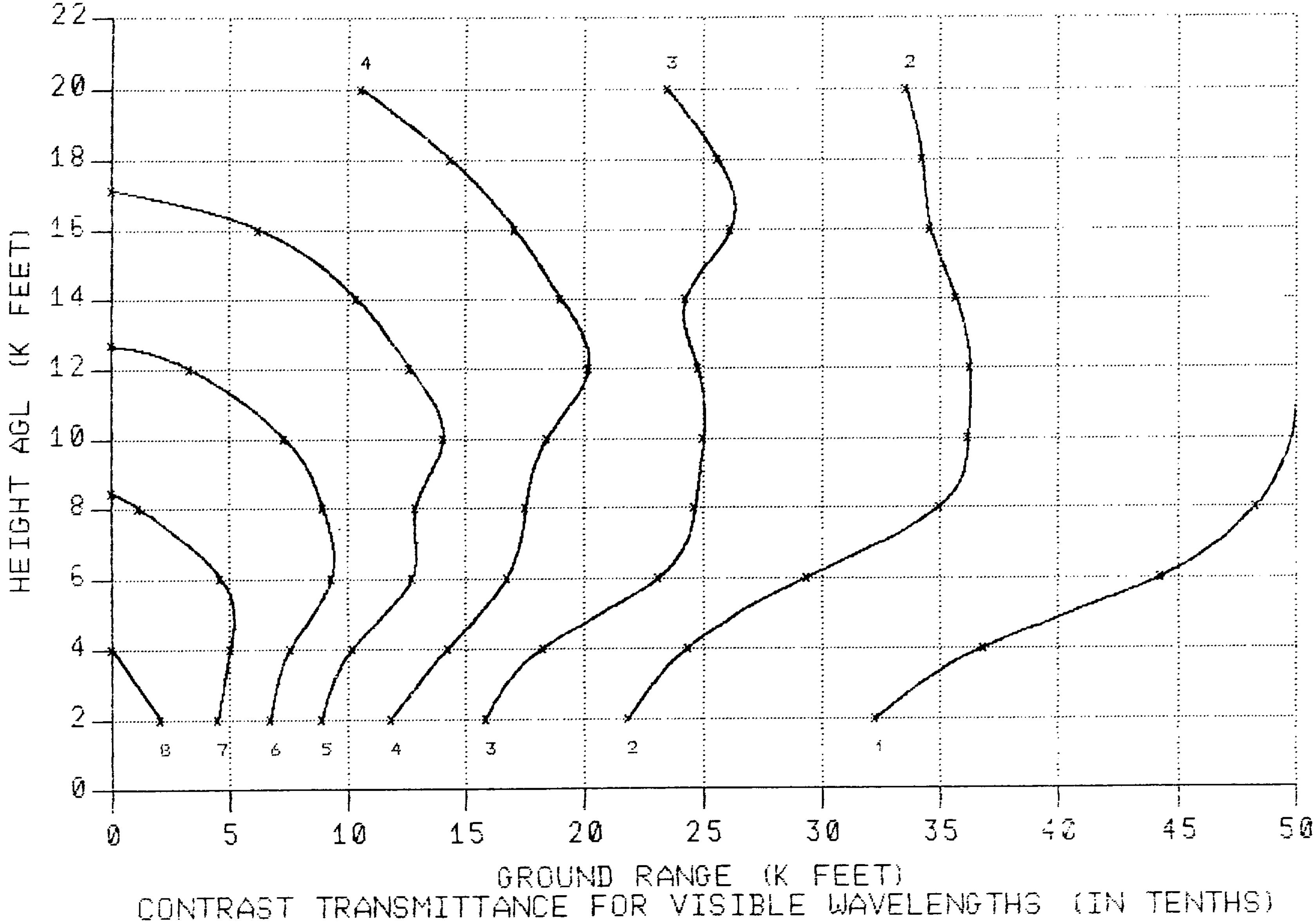
BKGND. REFLECTANCE: 50 TO 99 PERCENT
SOLAR ELEV. ANGLE : SET @ 25 DEGREE
SURFACE VISIBILITY: 7 MILES (11.3 KM)
MIXING LYR. DEPTH : 3000 FEET

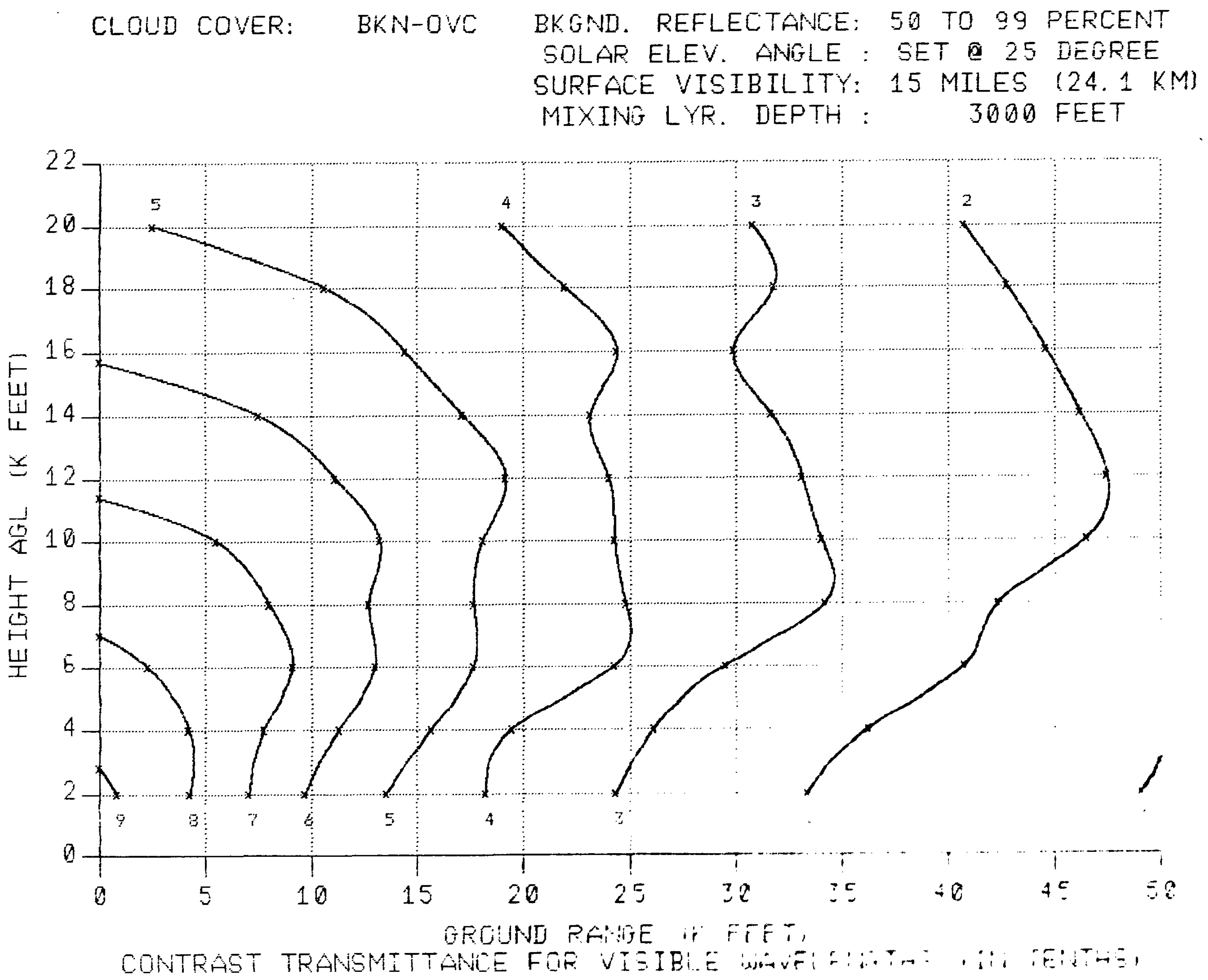


CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

CLOUD COVER: BKN-OVC

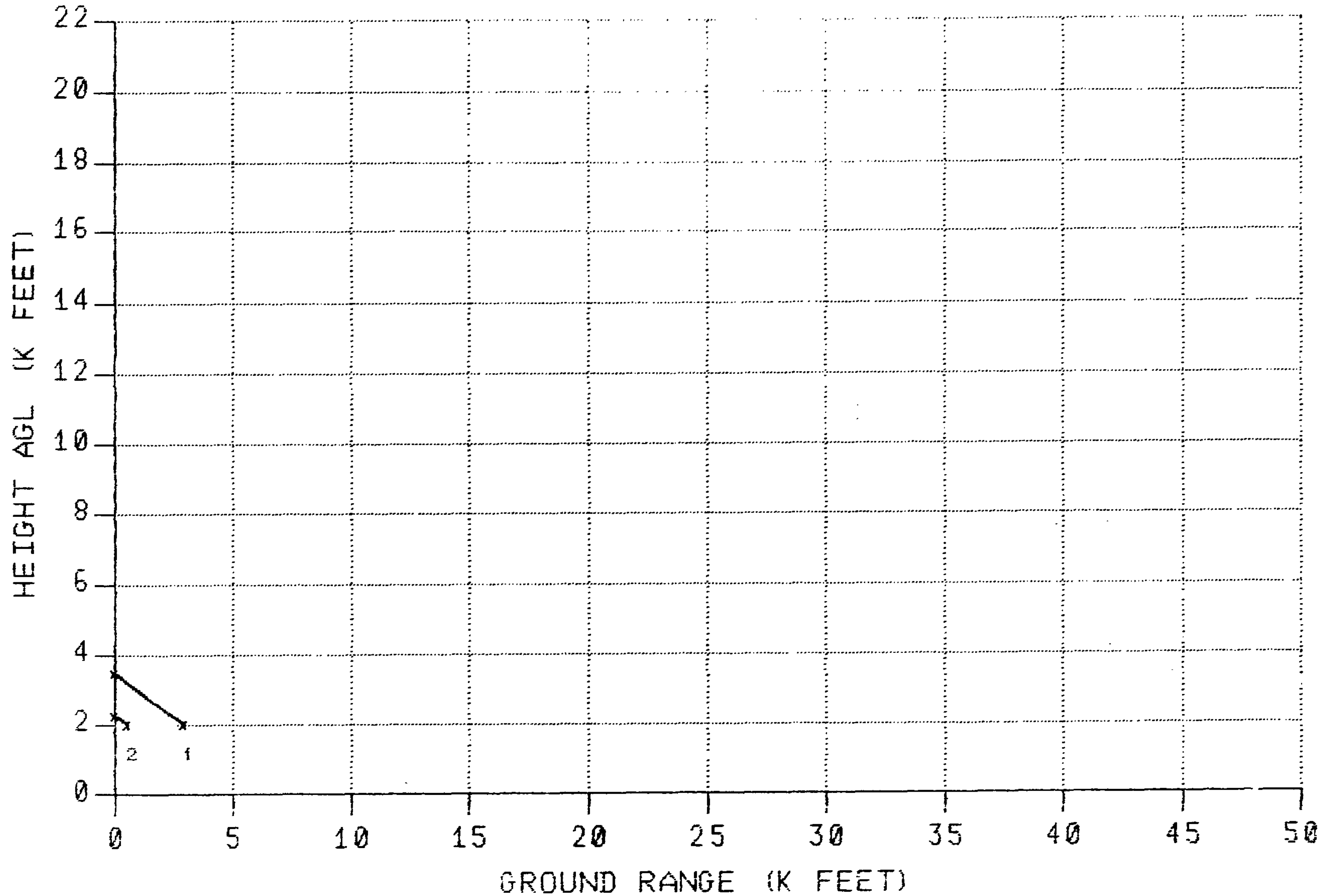
BKGND. REFLECTANCE: 50 TO 99 PERCENT
SOLAR ELEV. ANGLE : SET @ 25 DEGREE
SURFACE VISIBILITY: 10 MILES (16.1 KM)
MIXING LYR. DEPTH : 3000 FEET




CLOUD COVER: BKN-OVC
BKGND. REFLECTANCE: 50 TO 99 PERCENT
SOLAR ELEV. ANGLE : SET @ 25 DEGREE
SURFACE VISIBILITY: 15 MILES (24.1 KM)
MIXING LYR. DEPTH : 3000 FEET
HEIGHT AGL (K FEET)
GROUND RANGE (K FEET)
CONTRAST TRANSMITTANCE FOR VISIBLE

CLOUD COVER: BKN-OVC

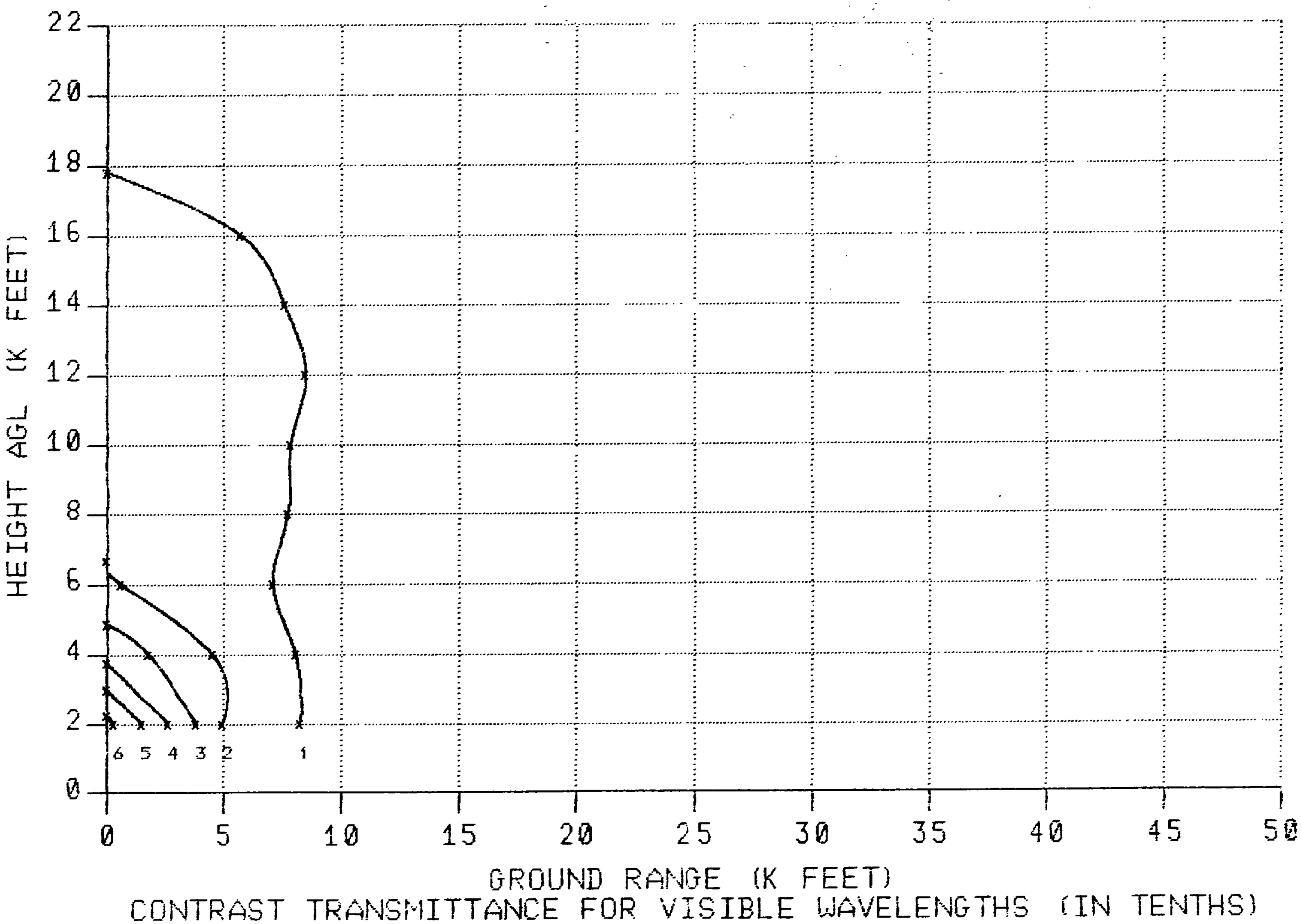
BKGND. REFLECTANCE: 50 TO 99 PERCENT
SOLAR ELEV. ANGLE : SET @ 25 DEGREE
SURFACE VISIBILITY: 1 MILE (1.6 KM)
MIXING LYR DEPTH : 6000 FEET



CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

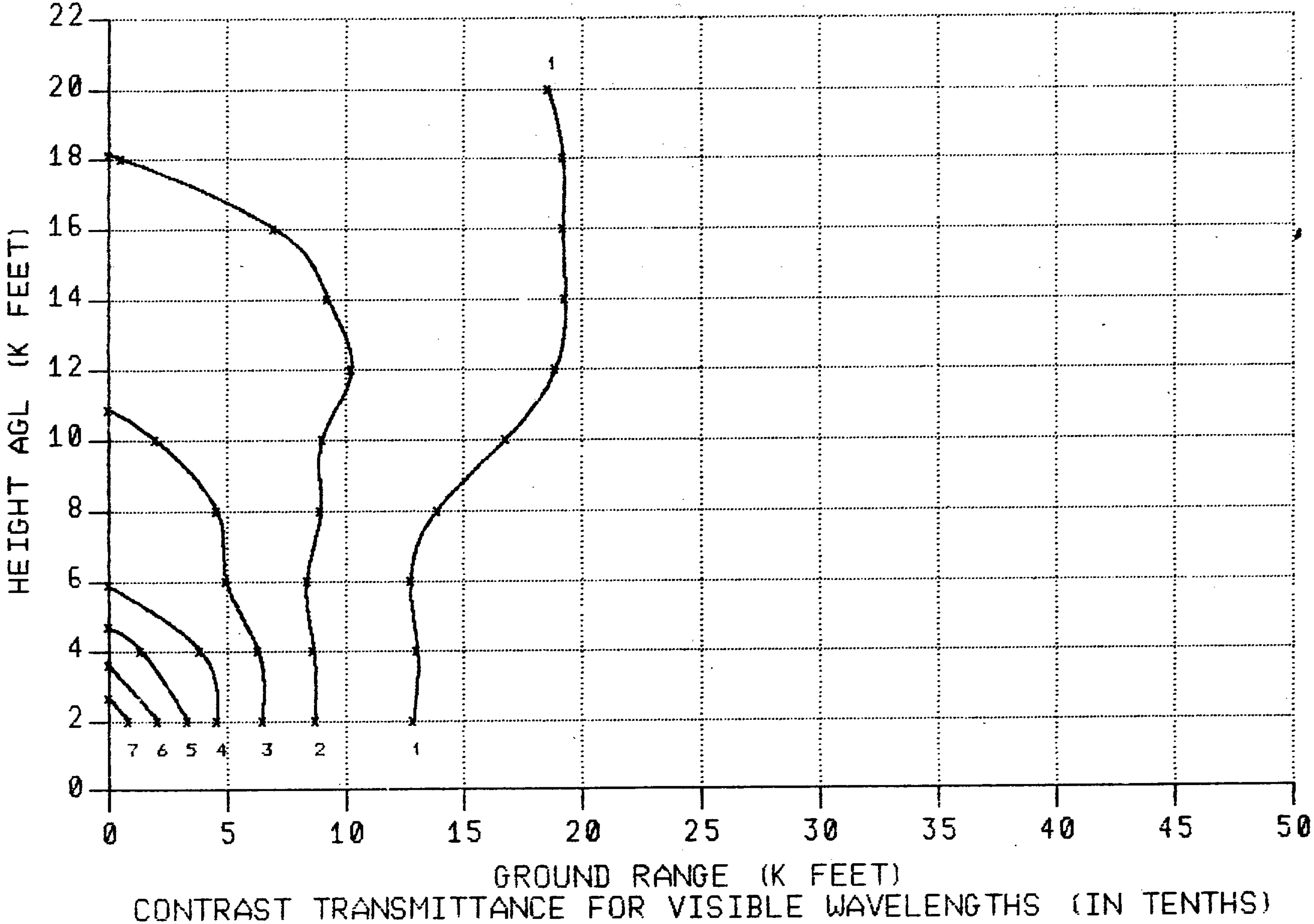
CLOUD COVER: BKN-OVC

BKGND. REFLECTANCE: 50 TO 99 PERCENT
SOLAR ELEV. ANGLE : SET @ 25 DEGREE
SURFACE VISIBILITY: 3 MILES (4.8 KM)
MIXING LYR. DEPTH : 6000 FEET



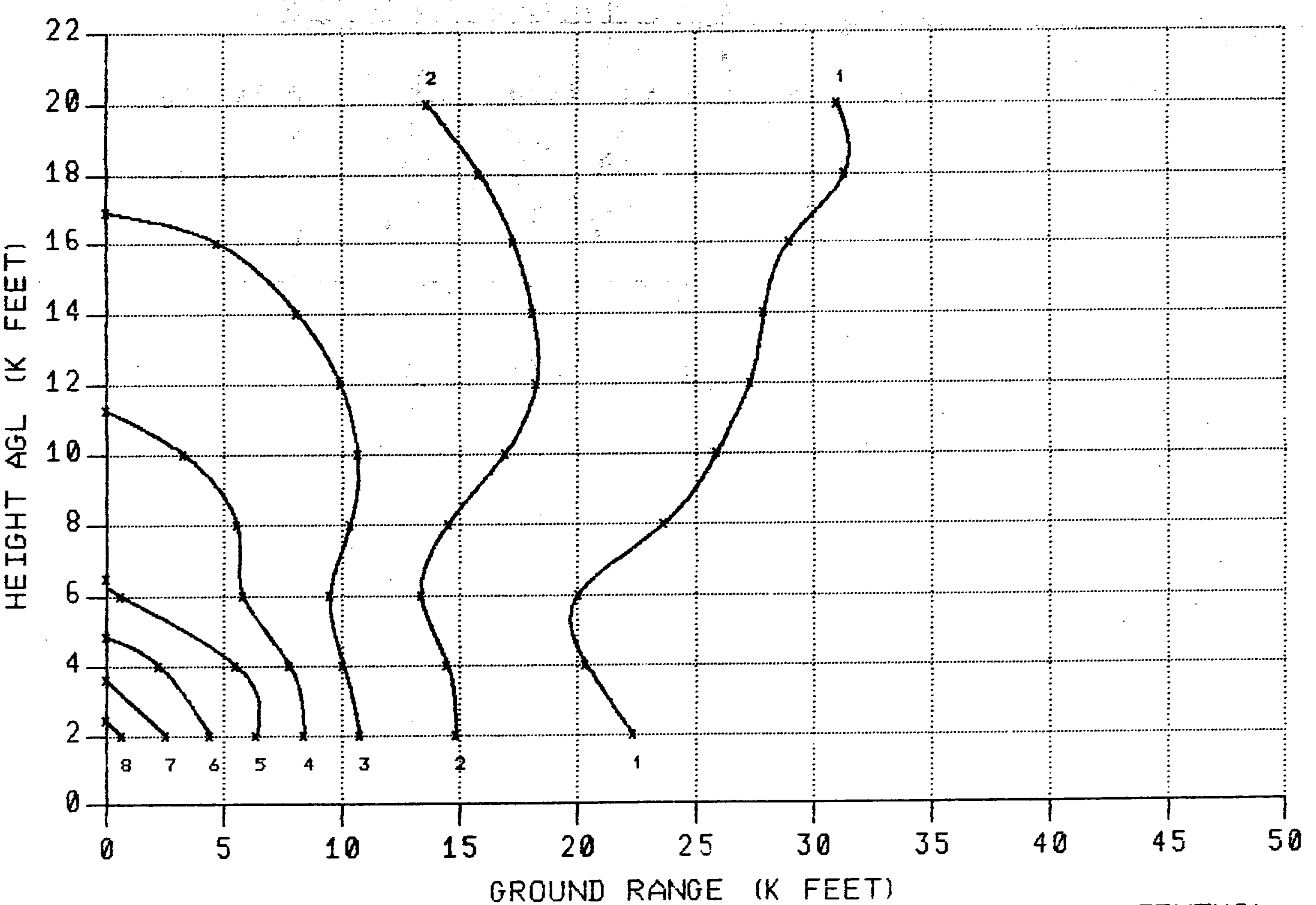
CLOUD COVER: BKN-OVC

BKGND. REFLECTANCE: 50 TO 99 PERCENT
SOLAR ELEV. ANGLE : SET @ 25 DEGREE
SURFACE VISIBILITY: 5 MILES (8.0 KM)
MIXING LYR. DEPTH : 6000 FEET



CLOUD COVER: BKN-OVC

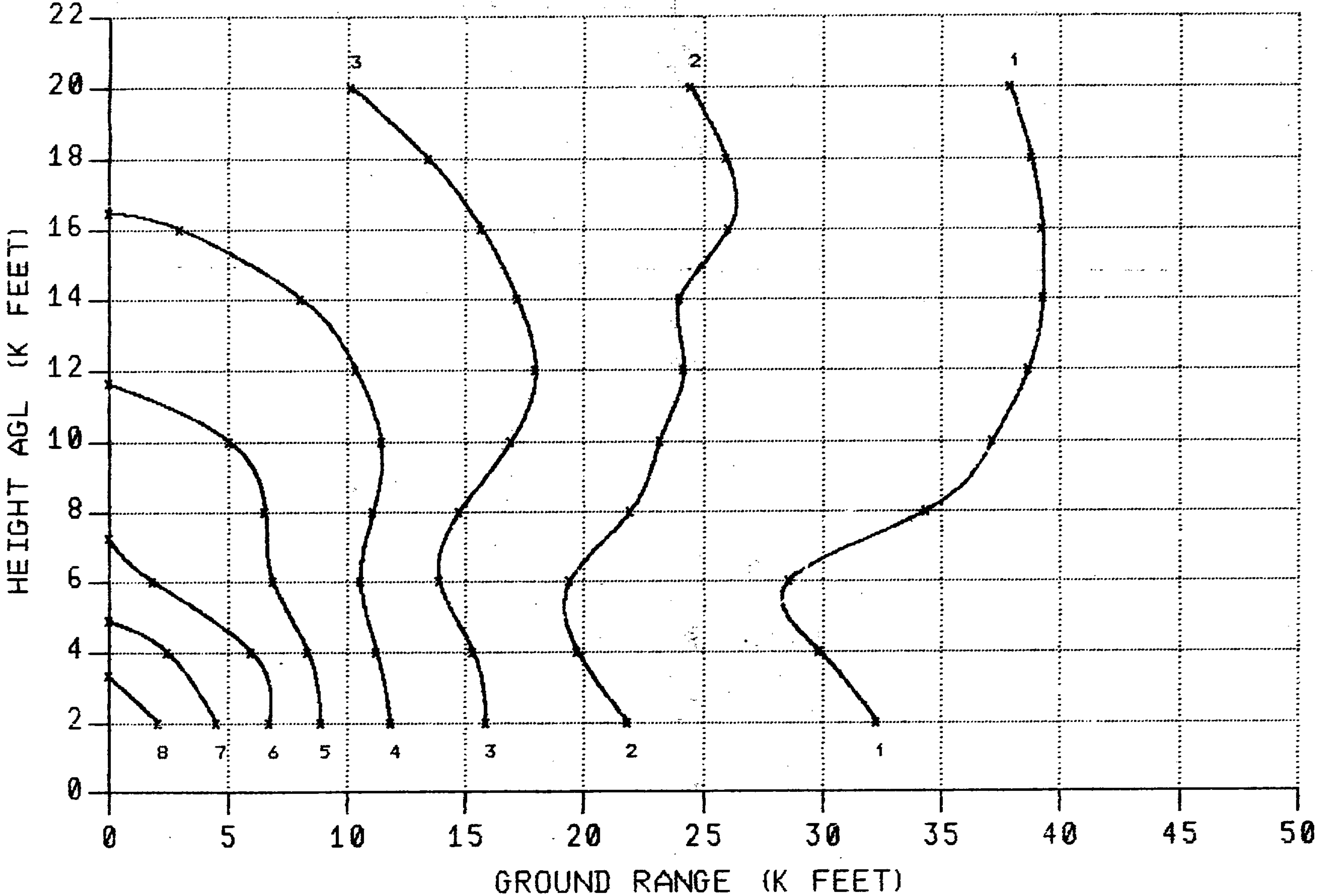
BKGND. REFLECTANCE: 50 TO 99 PERCENT
SOLAR ELEV. ANGLE : SET @ 25 DEGREE
SURFACE VISIBILITY: 7 MILES (11.3 KM)
MIXING LYR. DEPTH : 6000 FEET



CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

CLOUD COVER: BKN-OVC

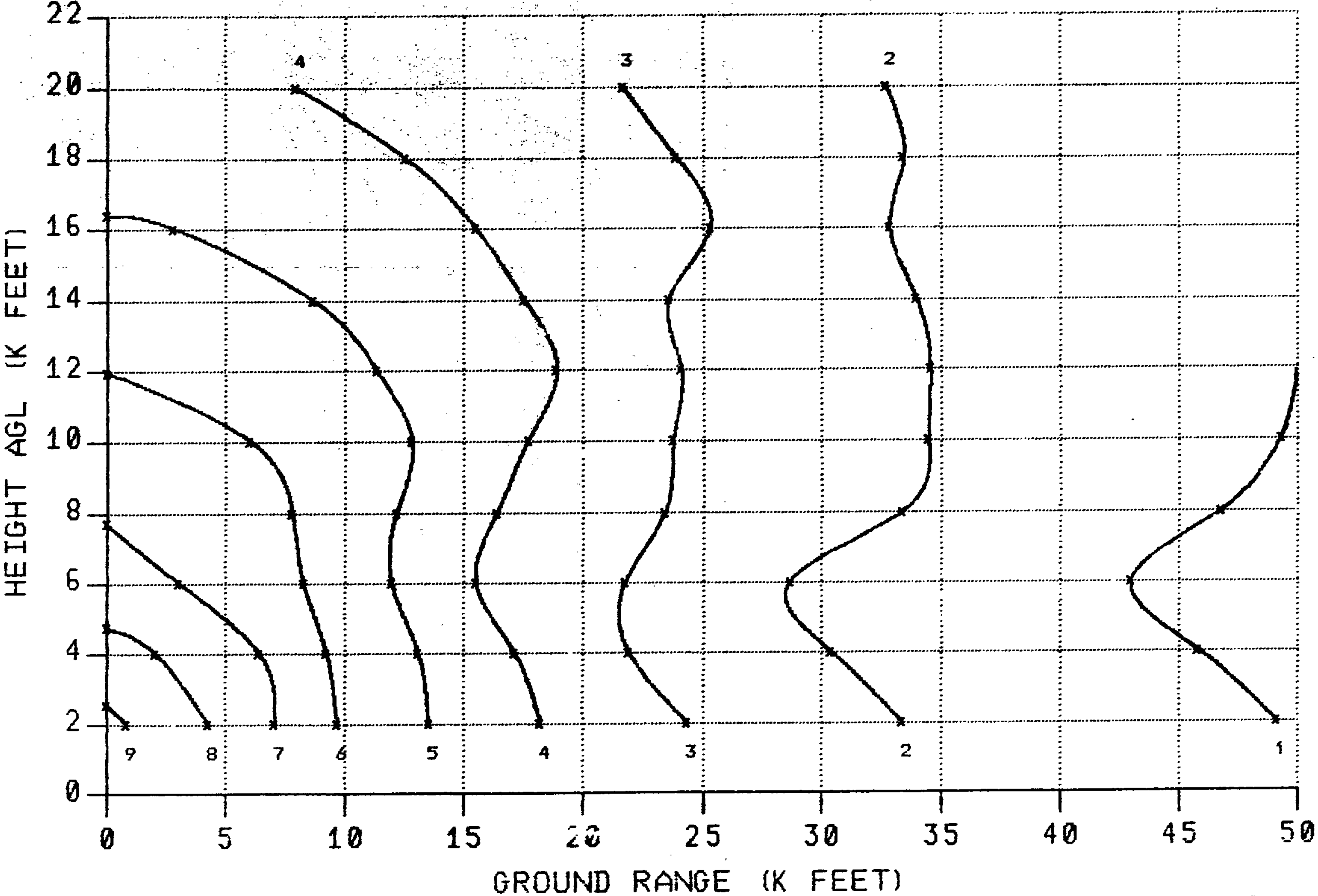
BKGND. REFLECTANCE: 50 TO 99 PERCENT
SOLAR ELEV. ANGLE : SET @ 25 DEGREE
SURFACE VISIBILITY: 10 MILES (16.1 KM)
MIXING LYR. DEPTH : 6000 FEET



CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

CLOUD COVER: BKN-OVC

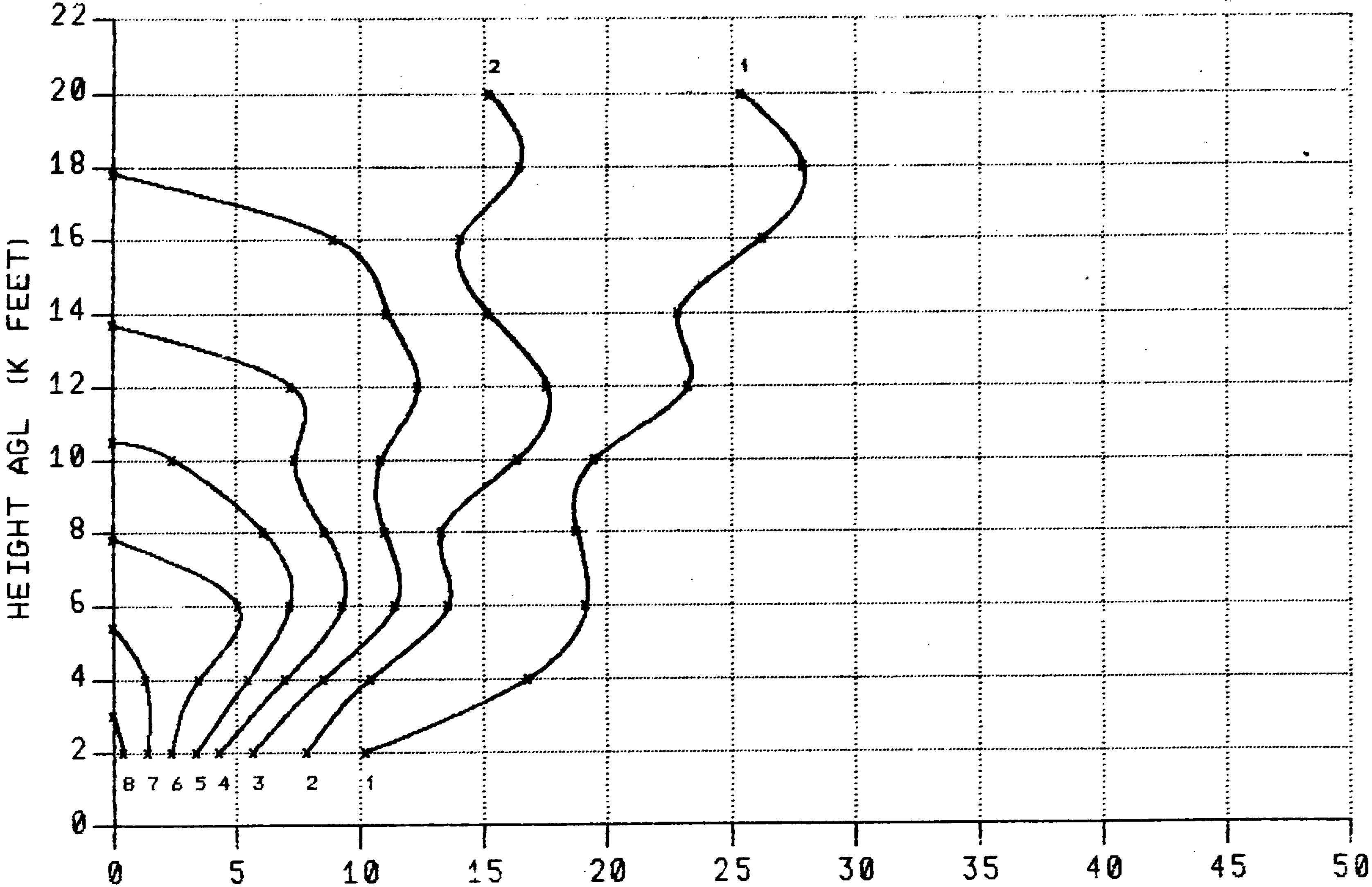
BKGND. REFLECTANCE: 50 TO 99 PERCENT
SOLAR ELEV. ANGLE : SET @ 25 DEGREE
SURFACE VISIBILITY: 15 MILES (24.1 KM)
MIXING LYR. DEPTH : 6000 FEET



CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

CLOUD COVER: CLR-SCT

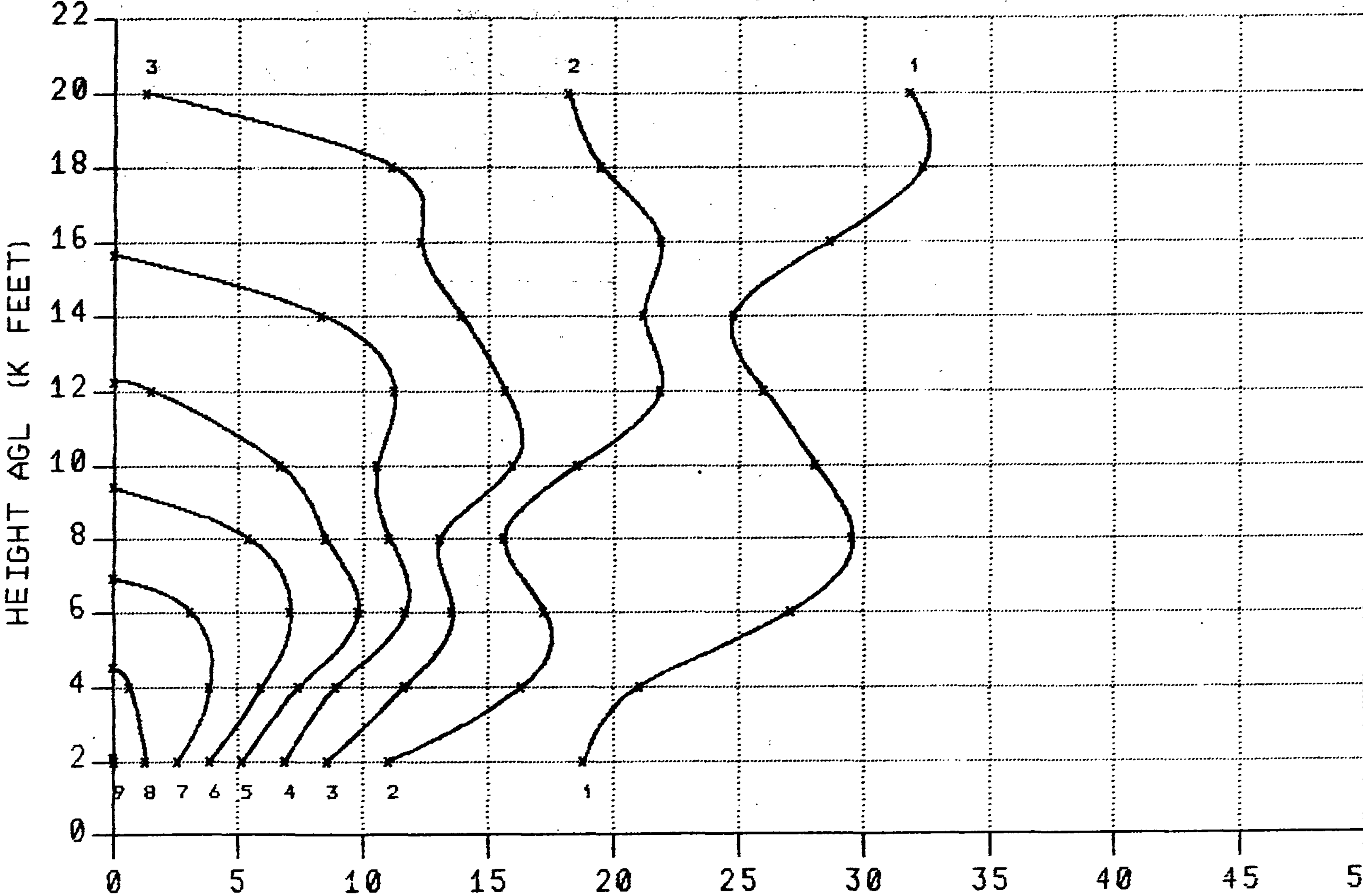
BKGND. REFLECTANCE: 00 TO 14 PERCENT
SOLAR ELEV. ANGLE : 0 TO 10 DEGREE
SURFACE VISIBILITY: 1 MILE (1.6 KM)
MIXING LYR. DEPTH : BELOW 50 FEET



CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

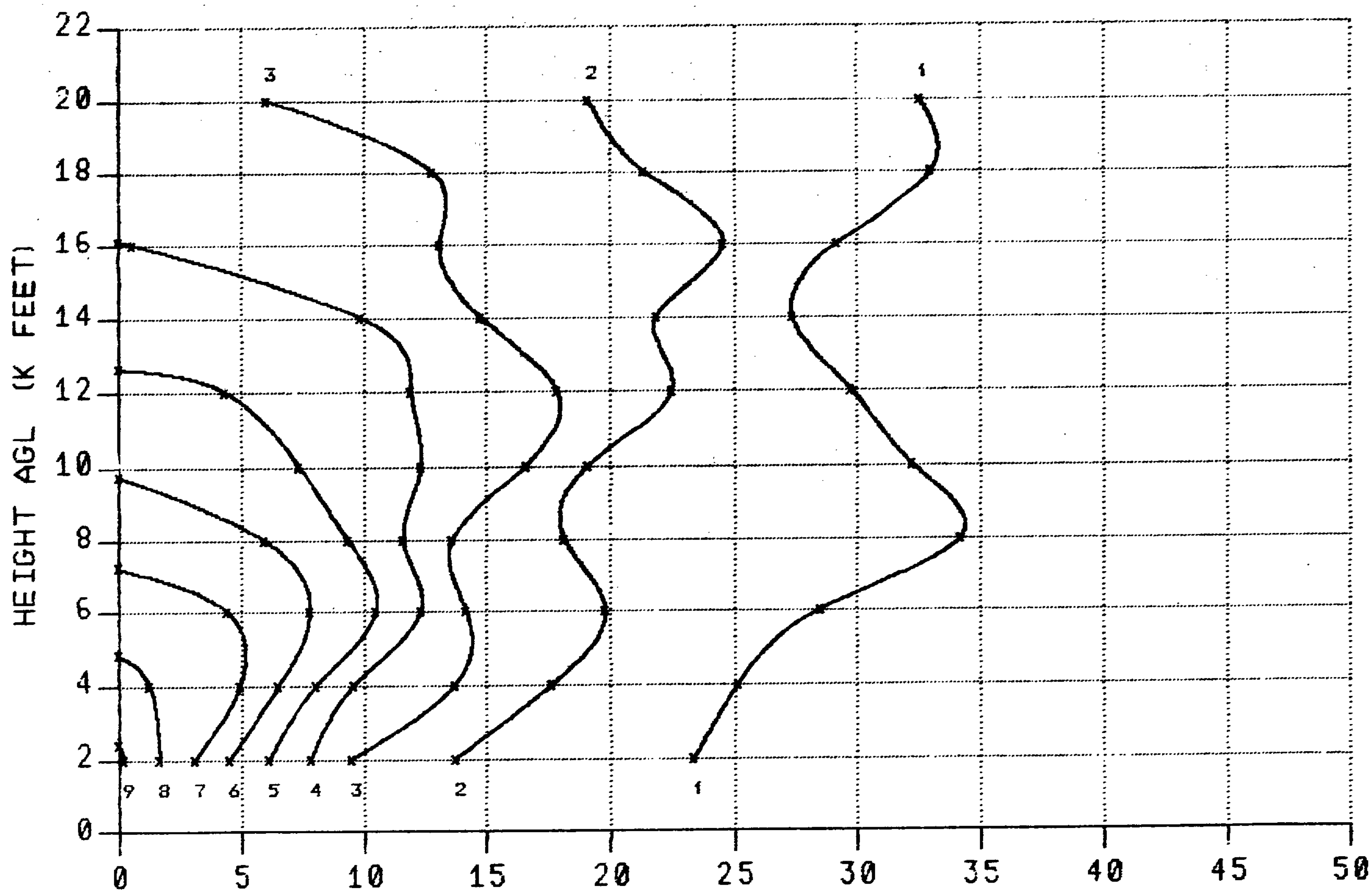
CLOUD COVER: CLR-SCT

BKGND. REFLECTANCE: 00 TO 14 PERCENT
SOLAR ELEV. ANGLE : 0 TO 10 DEGREE
SURFACE VISIBILITY: 3 MILES (4.8 KM)
MIXING LYR. DEPTH : BELOW 50 FEET



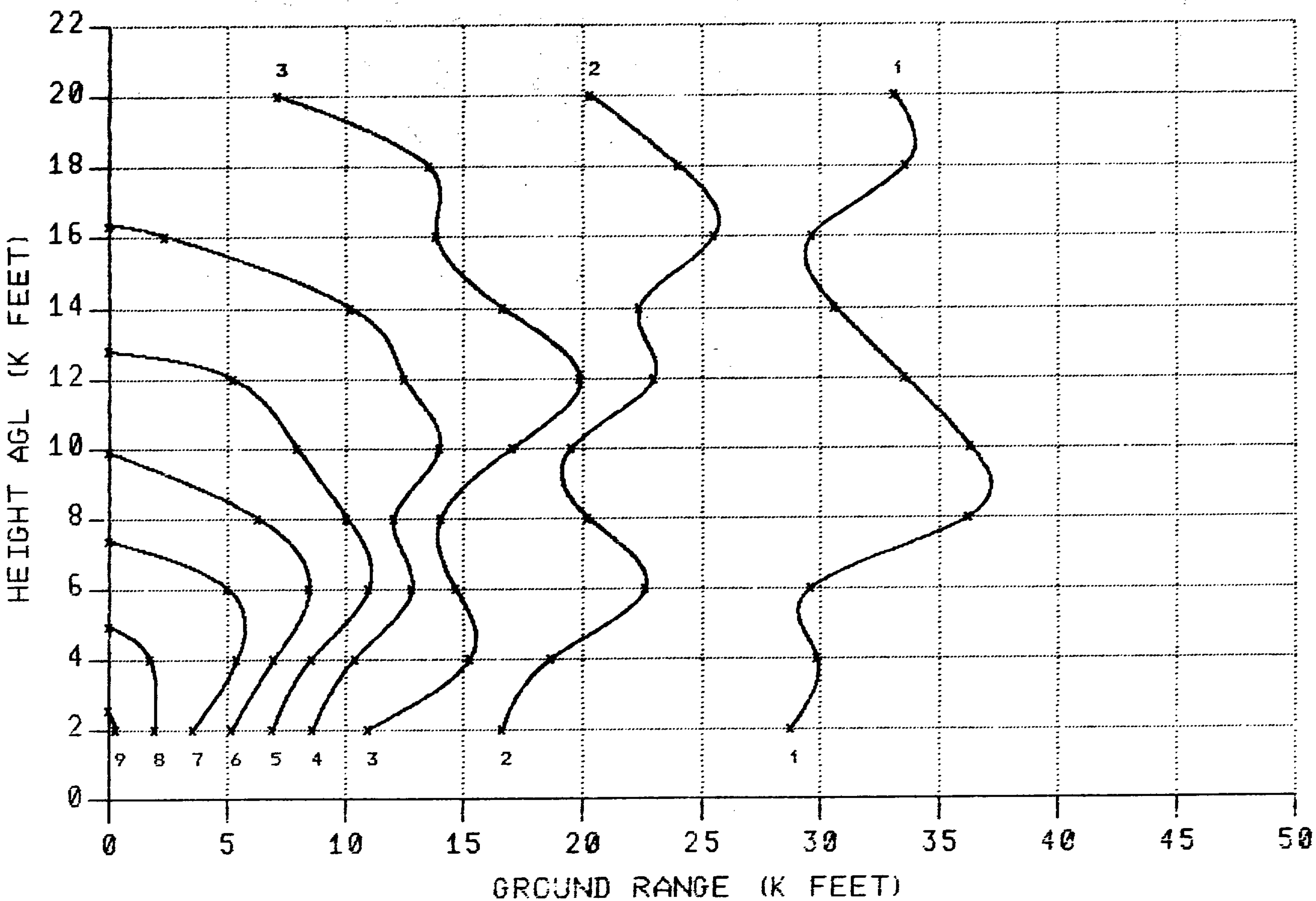
GROUND RANGE (K FEET)
CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

CLOUD COVER: CLR-SCT BKGND. REFLECTANCE: 00 TO 14 PERCENT
SOLAR ELEV. ANGLE : 0 TO 10 DEGREE
SURFACE VISIBILITY: 5 MILES (8.0 KM)
MIXING LYR. DEPTH : BELOW 50 FEET



CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

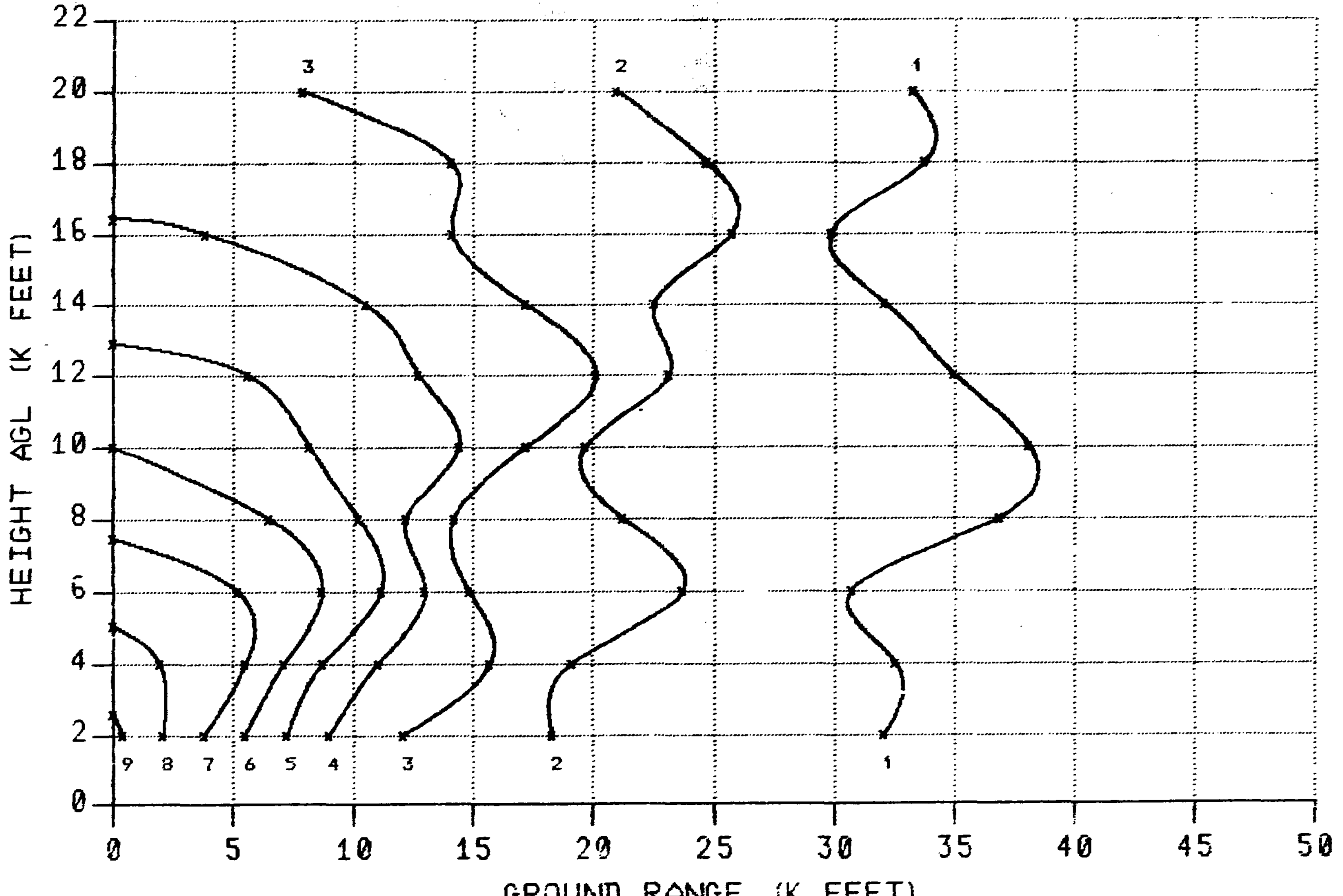
CLOUD COVER: CLR-SCT BKGND. REFLECTANCE: 00 TO 14 PERCENT
SOLAR ELEV. ANGLE : 0 TO 10 DEGREE
SURFACE VISIBILITY: 7 MILES (11.3 KM)
MIXING LYR. DEPTH : BELOW 50 FEET



CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

CLOUD COVER: CLR-SCT

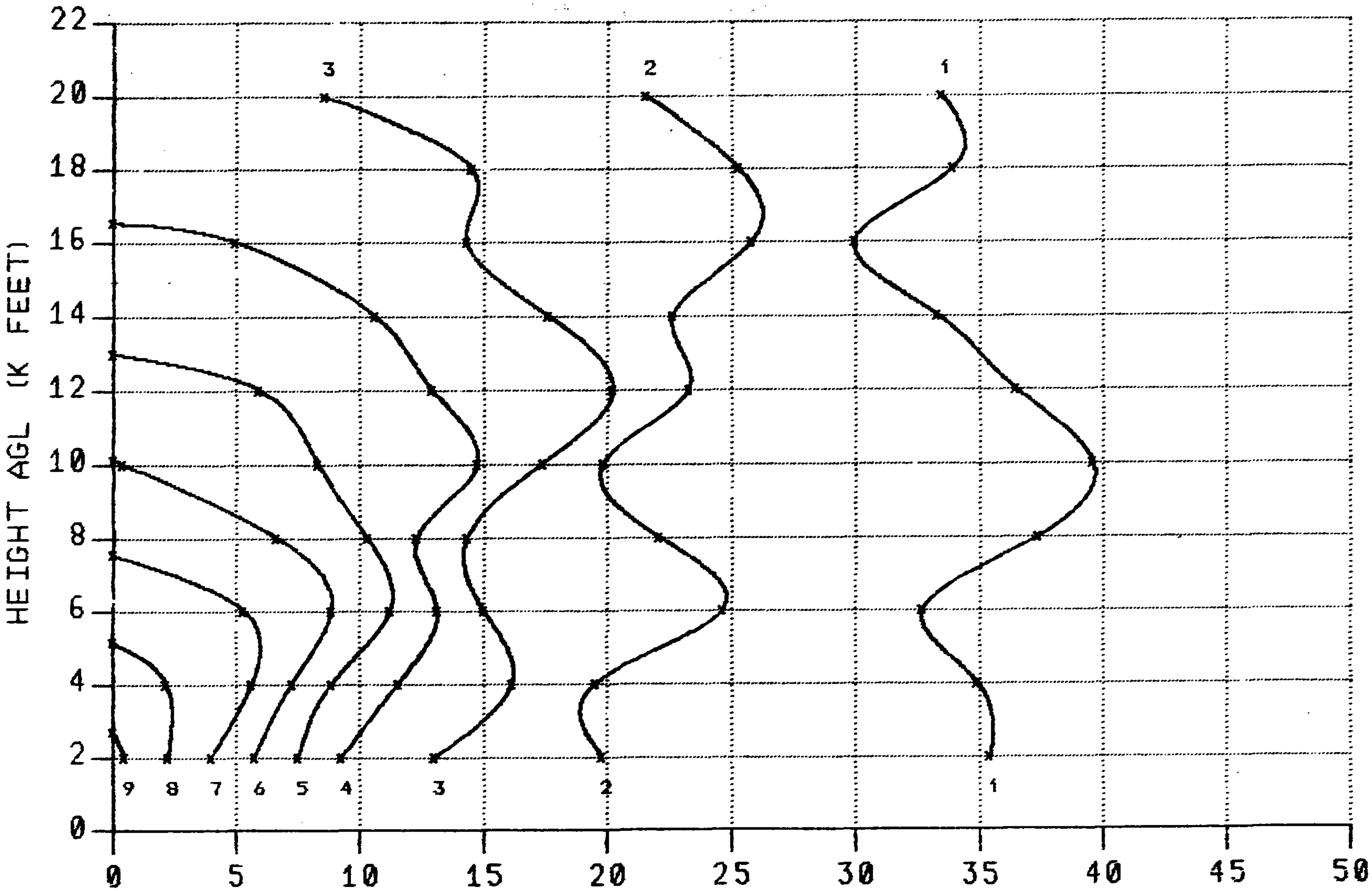
BKGND. REFLECTANCE: 00 TO 14 PERCENT
SOLAR ELEV. ANGLE : 0 TO 10 DEGREE
SURFACE VISIBILITY: 10 MILES (16.1 KM)
MIXING LYR. DEPTH : BELOW 50 FEET



CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

CLOUD COVER: CLR-SCT

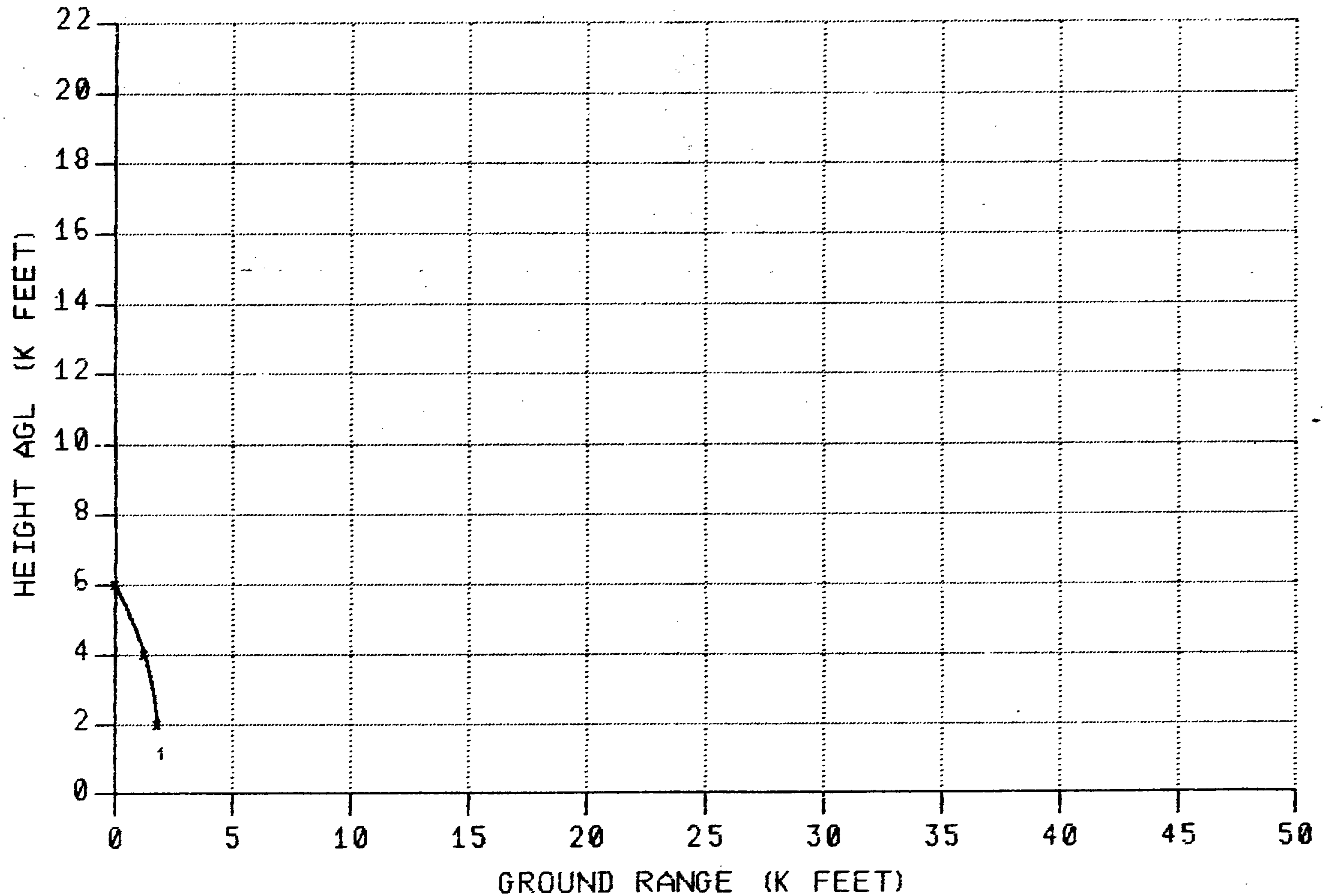
BKGND. REFLECTANCE: 00 TO 14 PERCENT
SOLAR ELEV. ANGLE : 0 TO 10 DEGREE
SURFACE VISIBILITY: 15 MILES (24.1 KM)
MIXING LYR. DEPTH : BELOW 50 FEET



GROUND RANGE (K FEET)
CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

CLOUD COVER: CLR-SCT

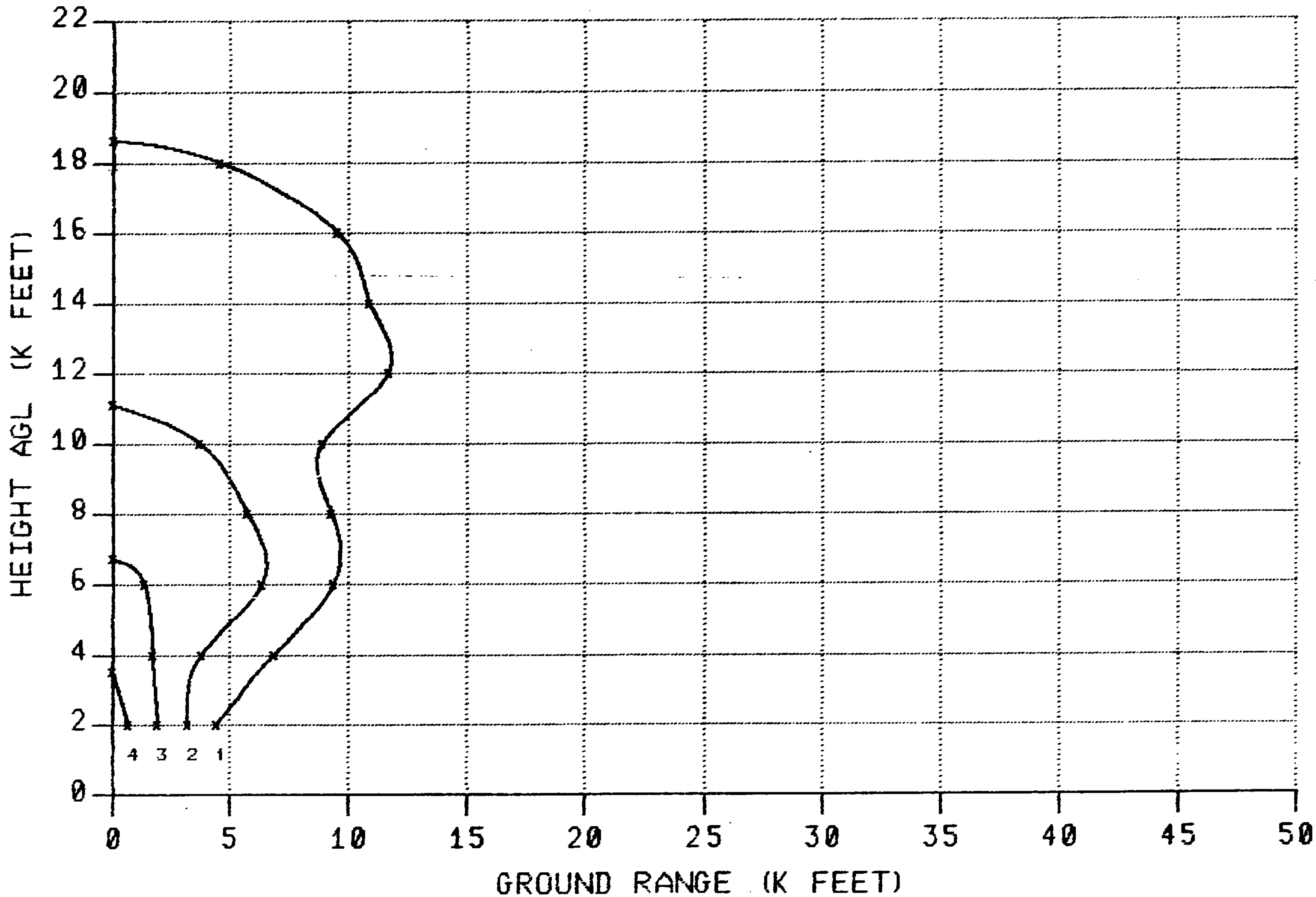
BKGND. REFLECTANCE: 00 TO 14 PERCENT
SOLAR ELEV. ANGLE : 0 TO 10 DEGREE
SURFACE VISIBILITY: 1 MILE (1.6 KM)
MIXING LYR. DEPTH : 1500 FEET



CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

CLOUD COVER: CLR-SCT

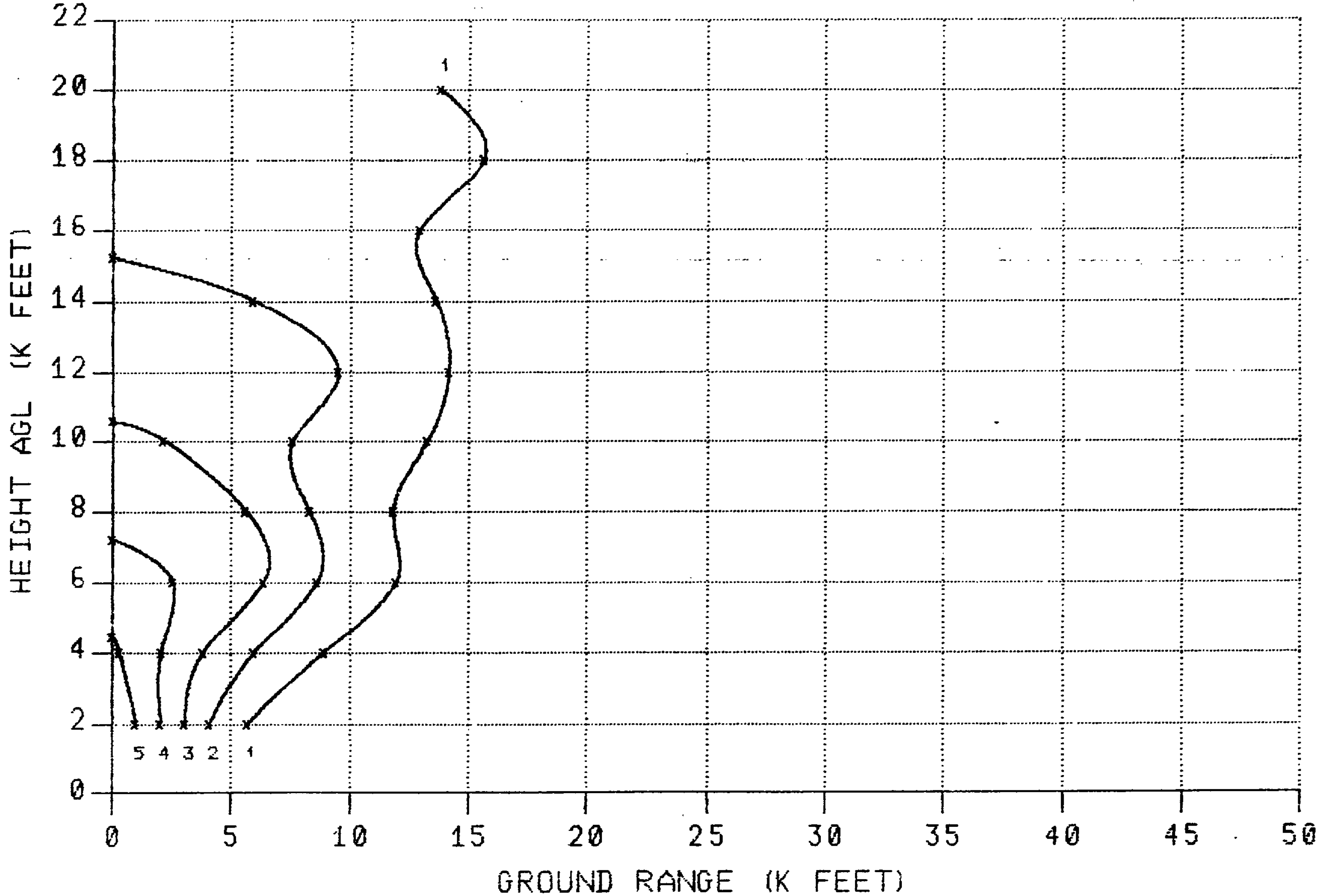
BKGND. REFLECTANCE: 00 TO 14 PERCENT
SOLAR ELEV. ANGLE : 0 TO 10 DEGREE
SURFACE VISIBILITY: 3 MILES (4.8 KM)
MIXING LYR. DEPTH : 1500 FEET



CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

CLOUD COVER: CLR-SCT

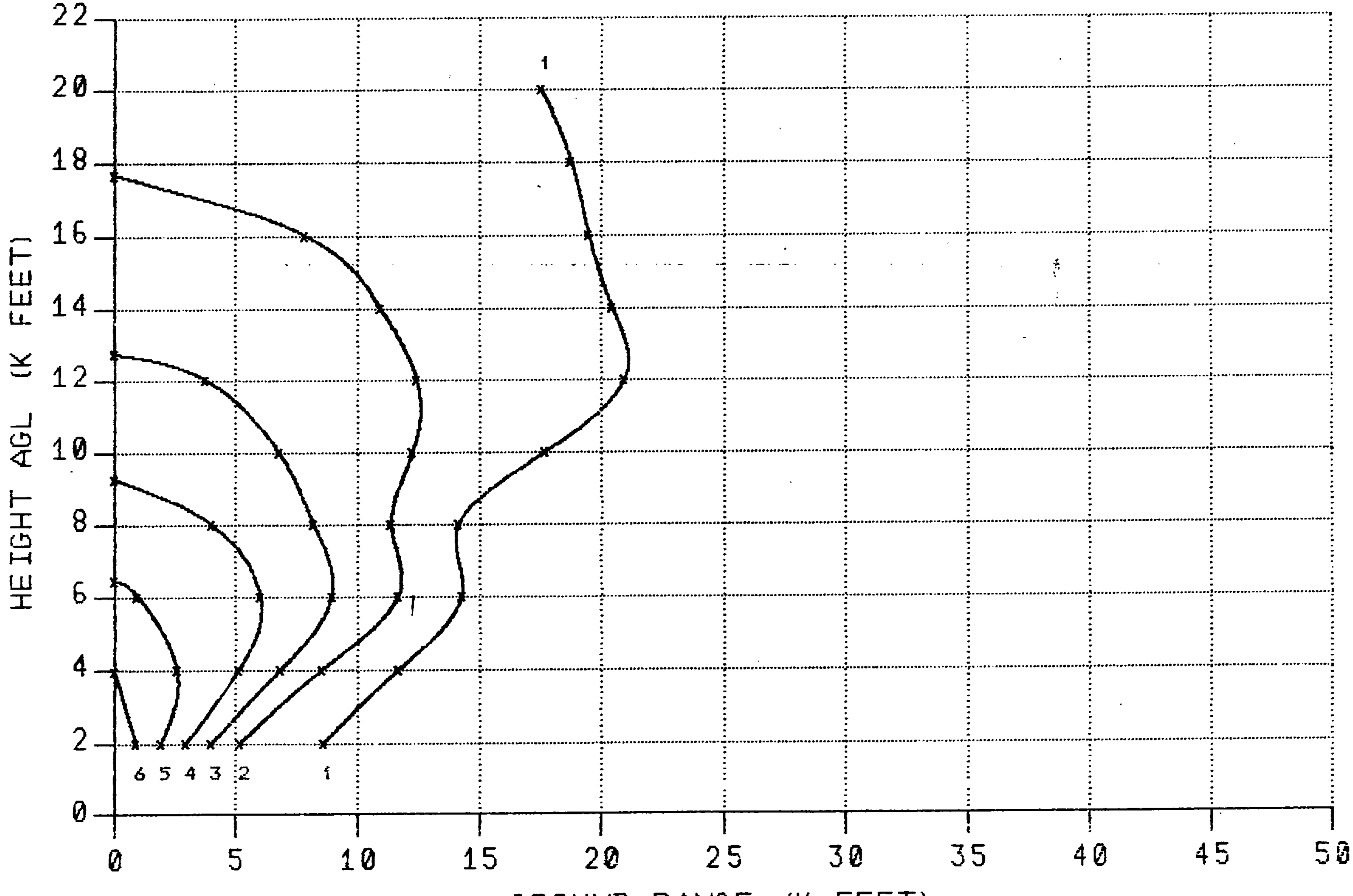
BKGND. REFLECTANCE: 00 TO 14 PERCENT
SOLAR ELEV. ANGLE : 0 TO 10 DEGREE
SURFACE VISIBILITY: 5 MILES (8.0 KM)
MIXING LYR. DEPTH : 1500 FEET



CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

CLOUD COVER: CLR-SCT

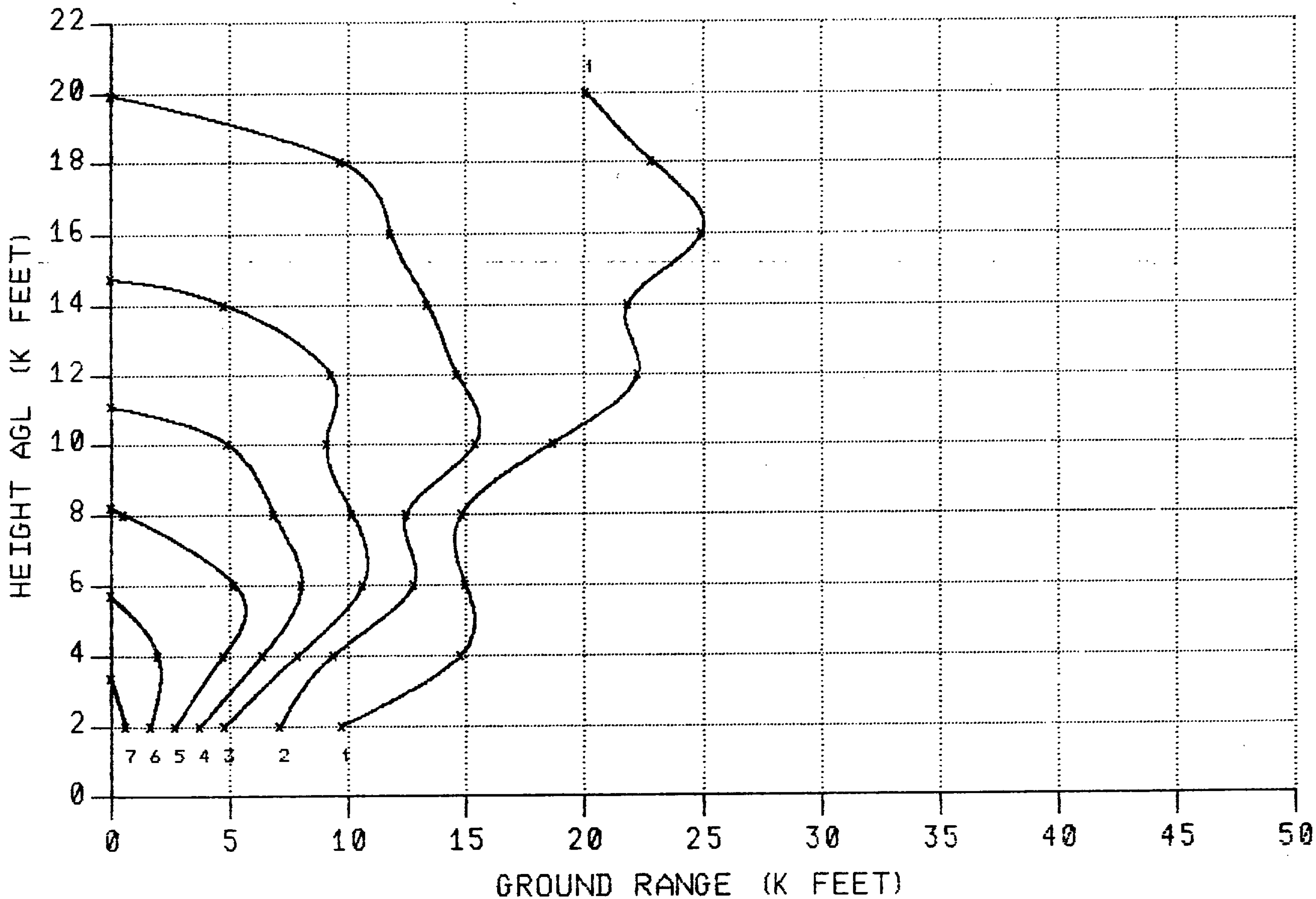
BKGND. REFLECTANCE: 00 TO 14 PERCENT
SOLAR ELEV. ANGLE : 0 TO 10 DEGREE
SURFACE VISIBILITY: 7 MILES (11.3 KM)
MIXING LYR. DEPTH : 1500 FEET



CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

CLOUD COVER: CLR-SCT

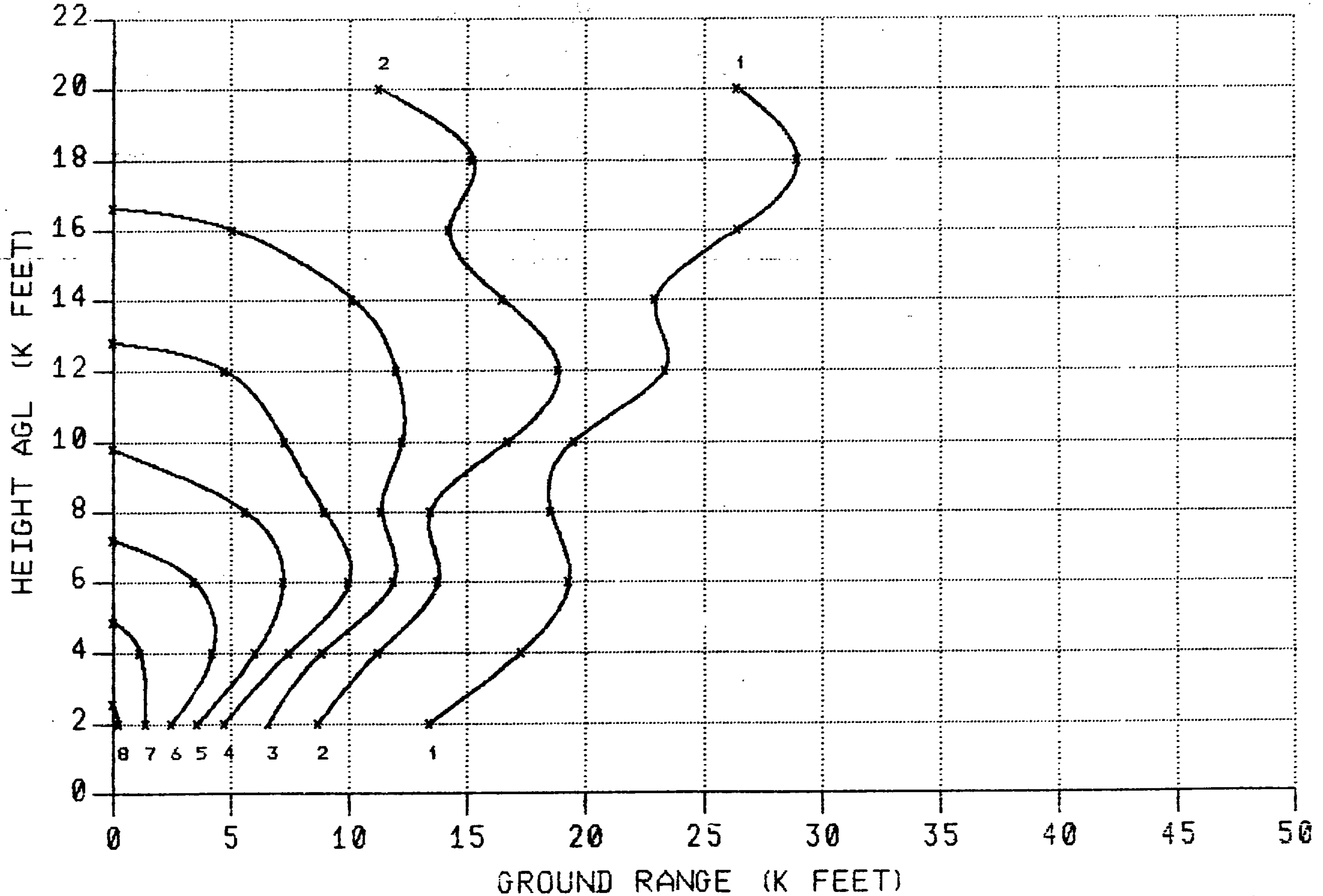
BKGND. REFLECTANCE: 00 TO 14 PERCENT
SOLAR ELEV. ANGLE : 0 TO 10 DEGREE
SURFACE VISIBILITY: 10 MILES (16.1 KM)
MIXING LYR. DEPTH : 1500 FEET



CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

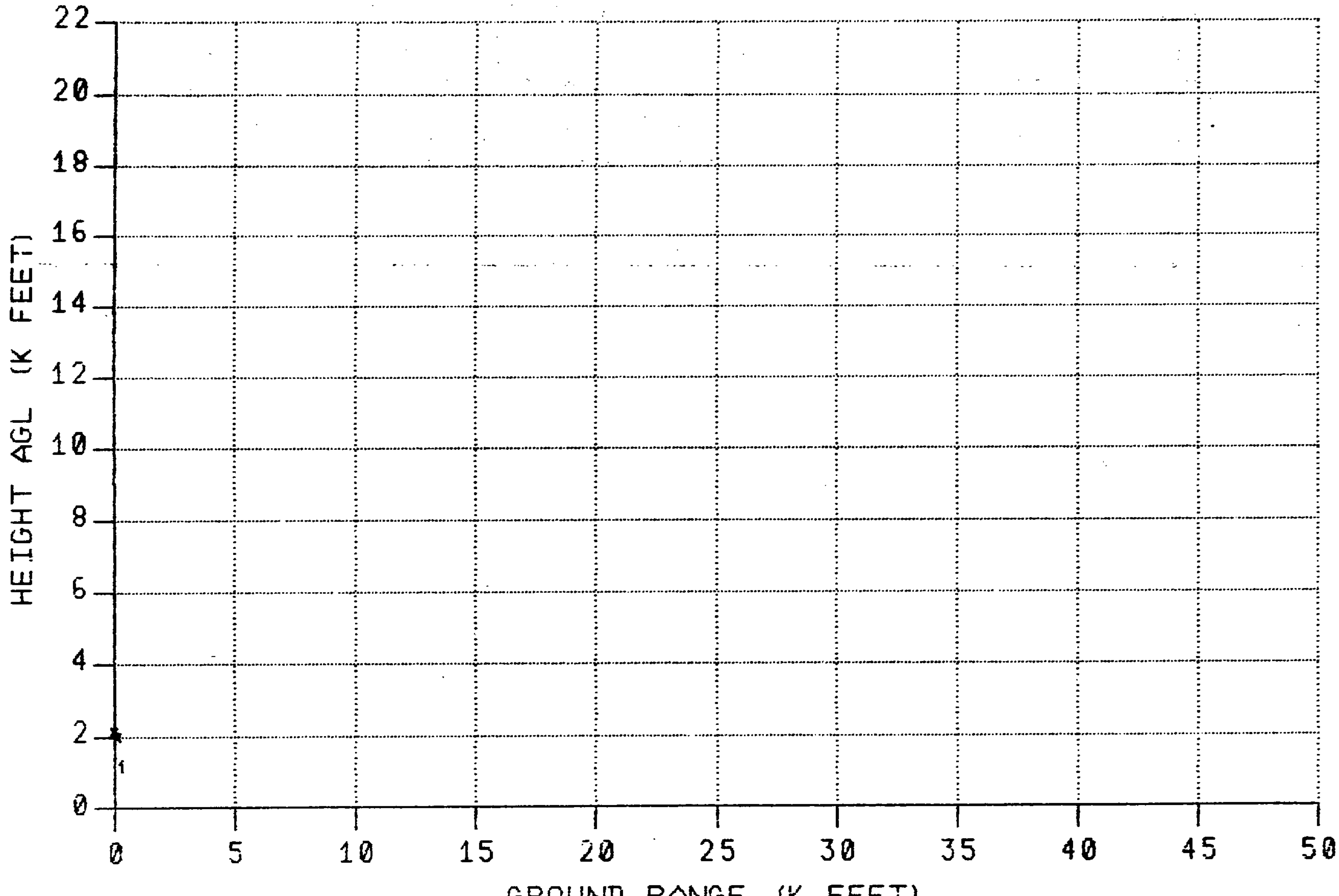
CLOUD COVER: CLR-SCT

BKGND. REFLECTANCE: 00 TO 14 PERCENT
SOLAR ELEV. ANGLE : 0 TO 10 DEGREE
SURFACE VISIBILITY: 15 MILES (24.1 KM)
MIXING LYR. DEPTH : 1500 FEET



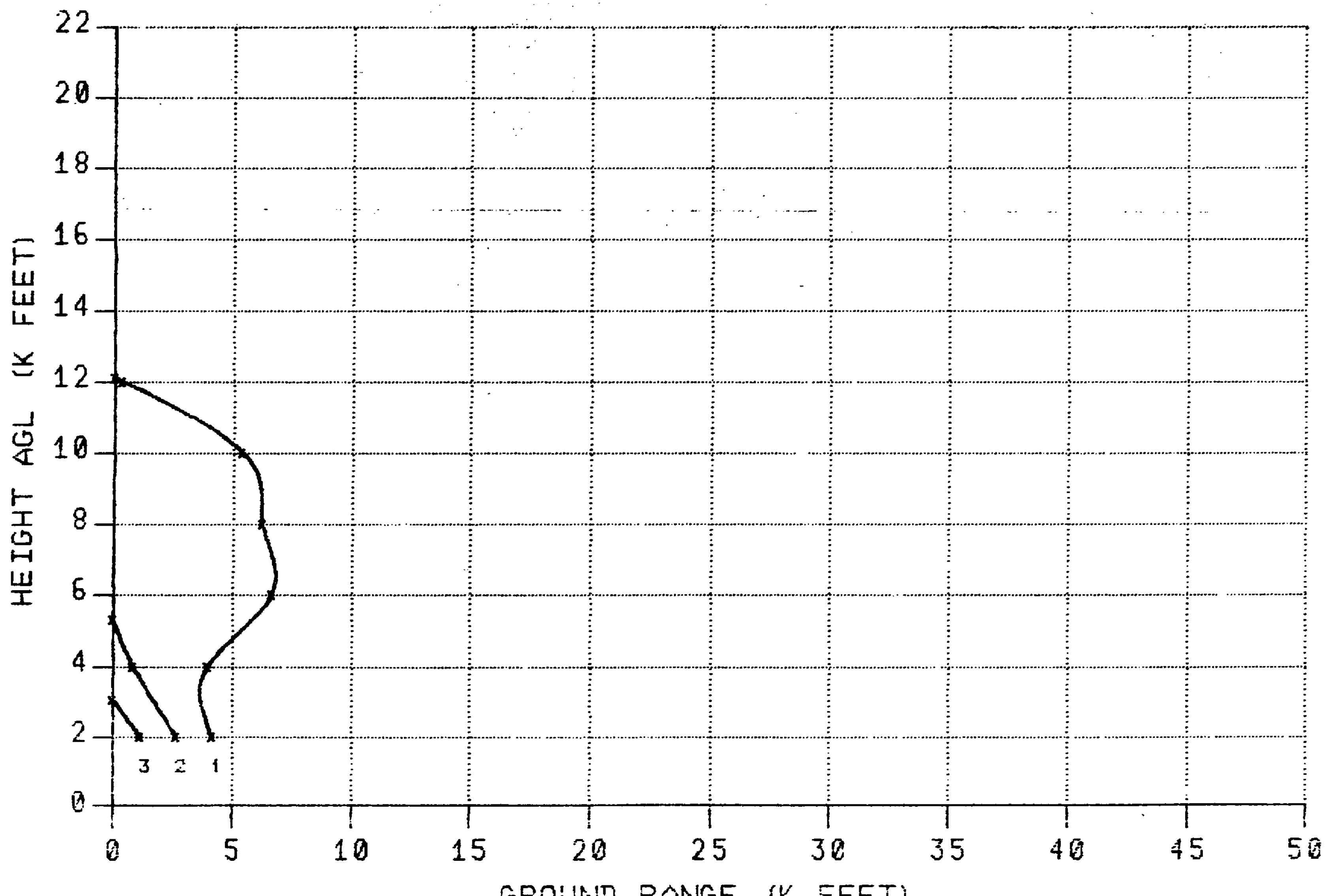
CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

CLOUD COVER: CLR-SCT BKGND. REFLECTANCE: 00 TO 14 PERCENT
SOLAR ELEV. ANGLE : 0 TO 10 DEGREE
SURFACE VISIBILITY: 1 MILE (1.6 KM)
MIXING LYR. DEPTH : 3000 FEET



CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

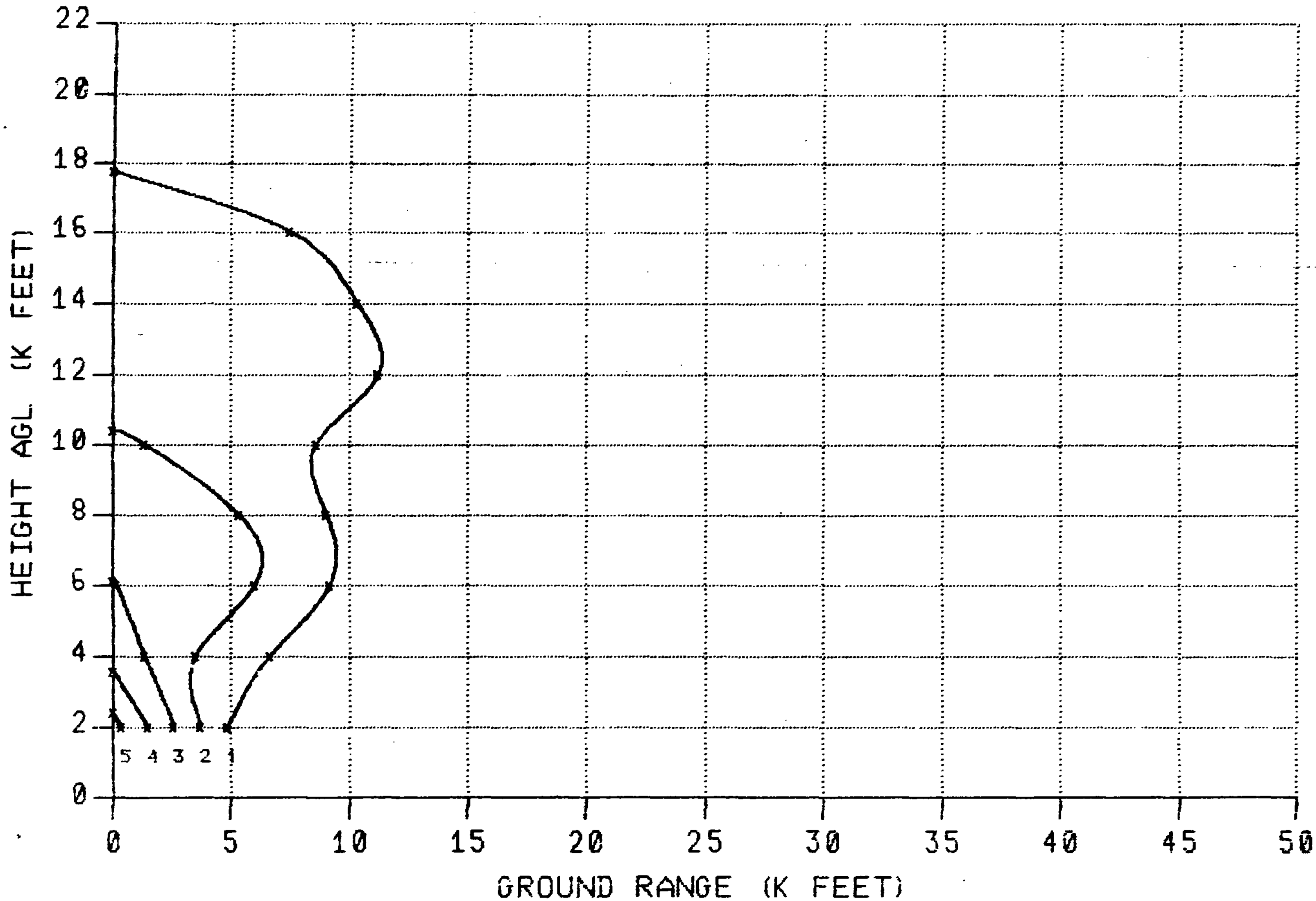
CLOUD COVER: CLR-SCT BKGND. REFLECTANCE: 00 TO 14 PERCENT
SOLAR ELEV. ANGLE : 0 TO 10 DEGREE
SURFACE VISIBILITY: 3 MILES (4.8 KM)
MIXING LYR. DEPTH : 3000 FEET



CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS- (IN TENTHS)

CLOUD COVER: CLR-SCT

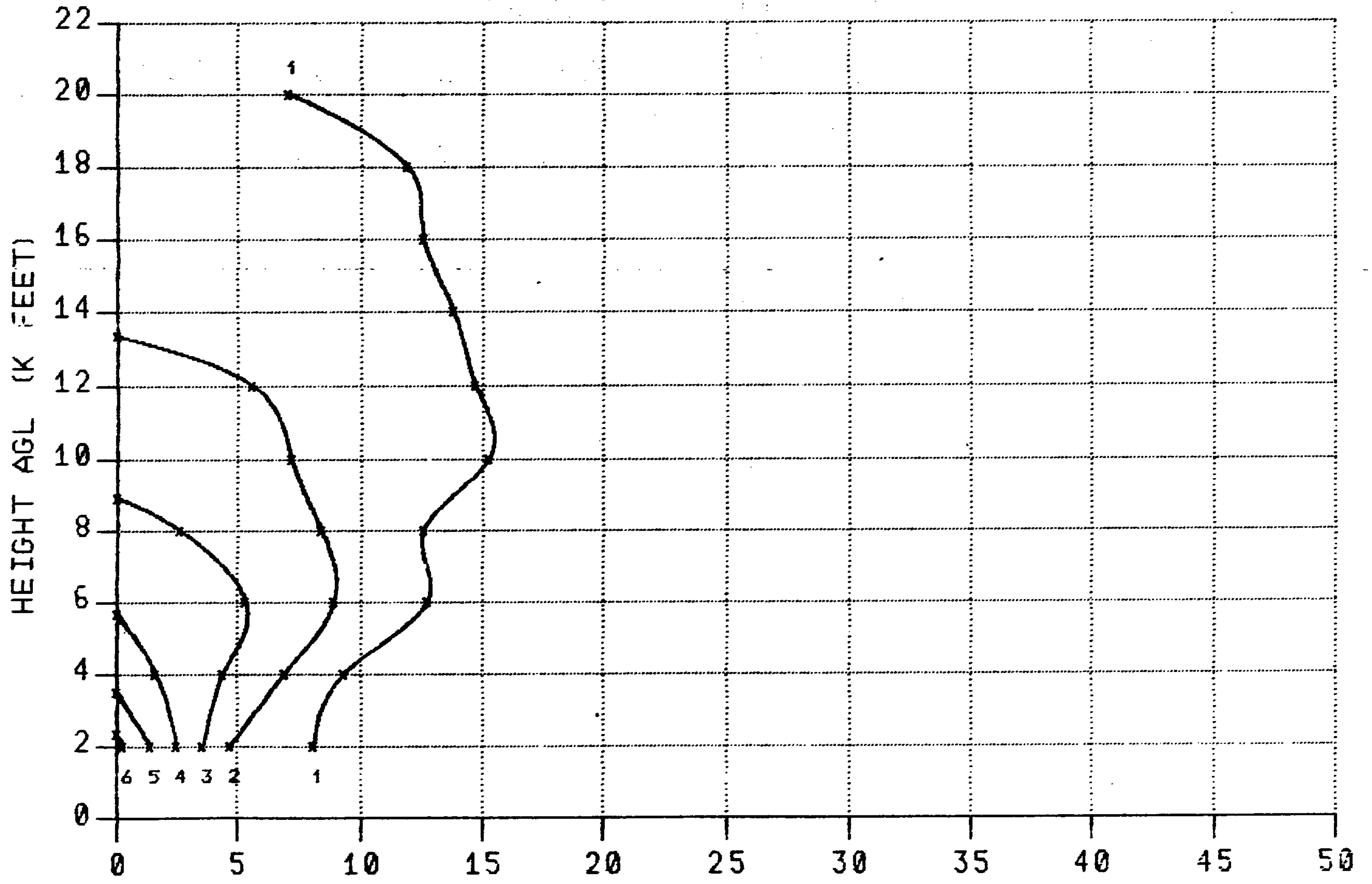
BKGND. REFLECTANCE: 00 TO 14 PERCENT
SOLAR ELEV. ANGLE : 0 TO 10 DEGREE
SURFACE VISIBILITY: 5 MILES (8.0 KM)
MIXING LYR. DEPTH : 3000 FEET



CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

CLOUD COVER: CLR-SCT

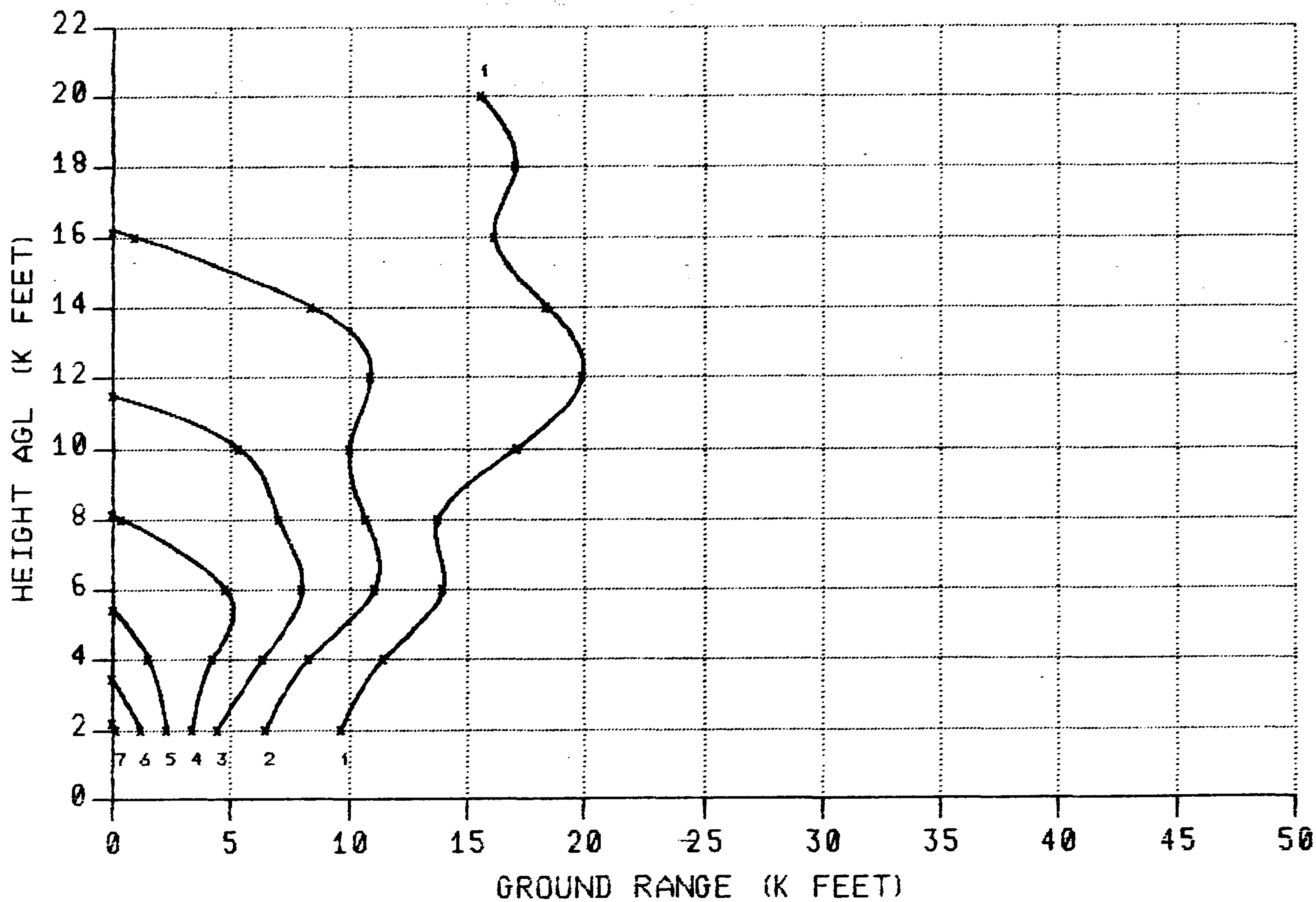
BKGND. REFLECTANCE: 00 TO 14 PERCENT
SOLAR ELEV. ANGLE : 0 TO 10 DEGREE
SURFACE VISIBILITY: 7 MILES (11.3 KM)
MIXING LYR. DEPTH : 3000 FEET



CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

CLOUD COVER: CLR-SCT

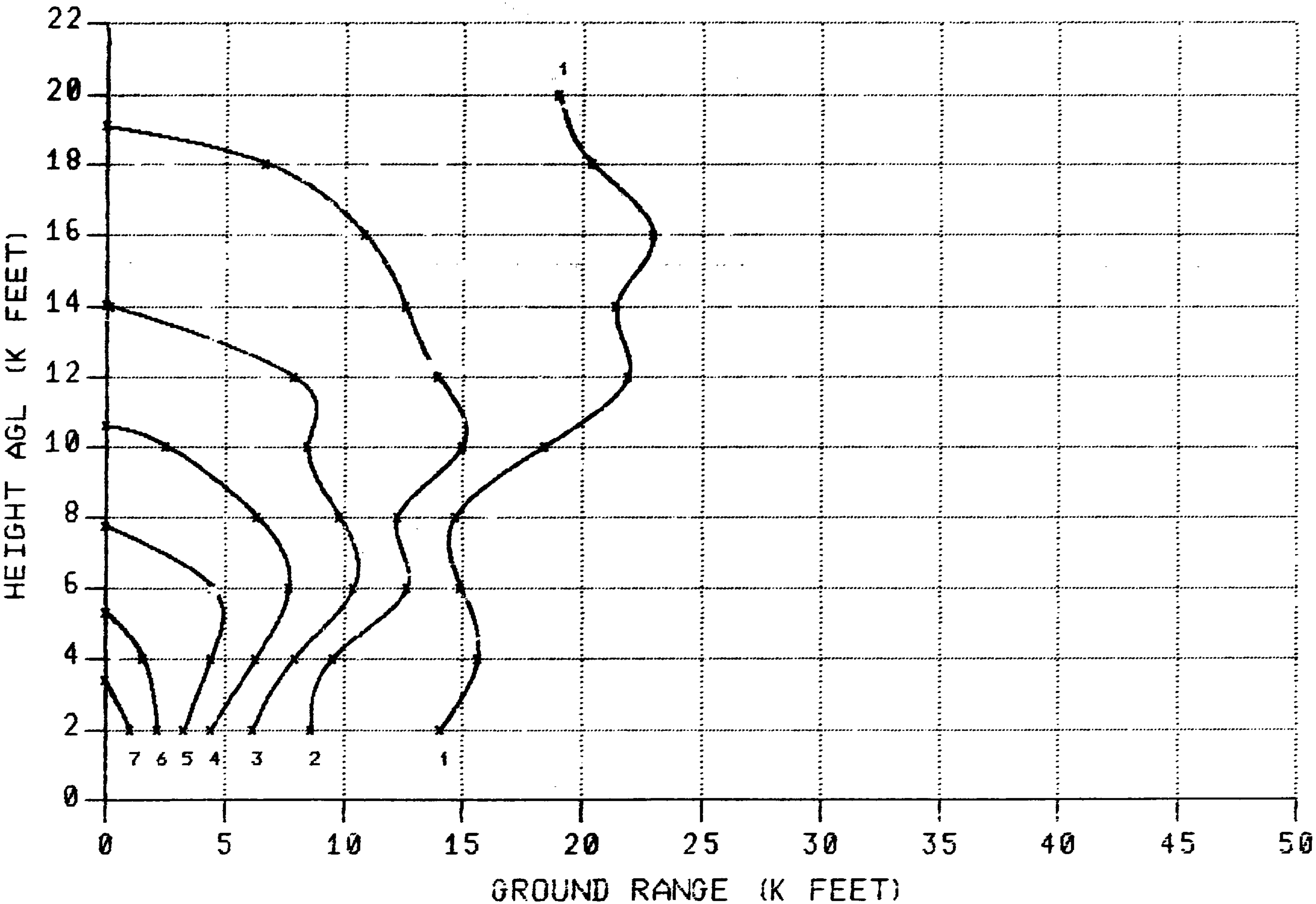
BKGND. REFLECTANCE: 00 TO 14 PERCENT
SOLAR ELEV. ANGLE : 0 TO 10 DEGREE
SURFACE VISIBILITY: 10 MILES (16.1 KM)
MIXING LYR. DEPTH : 3000 FEET



CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

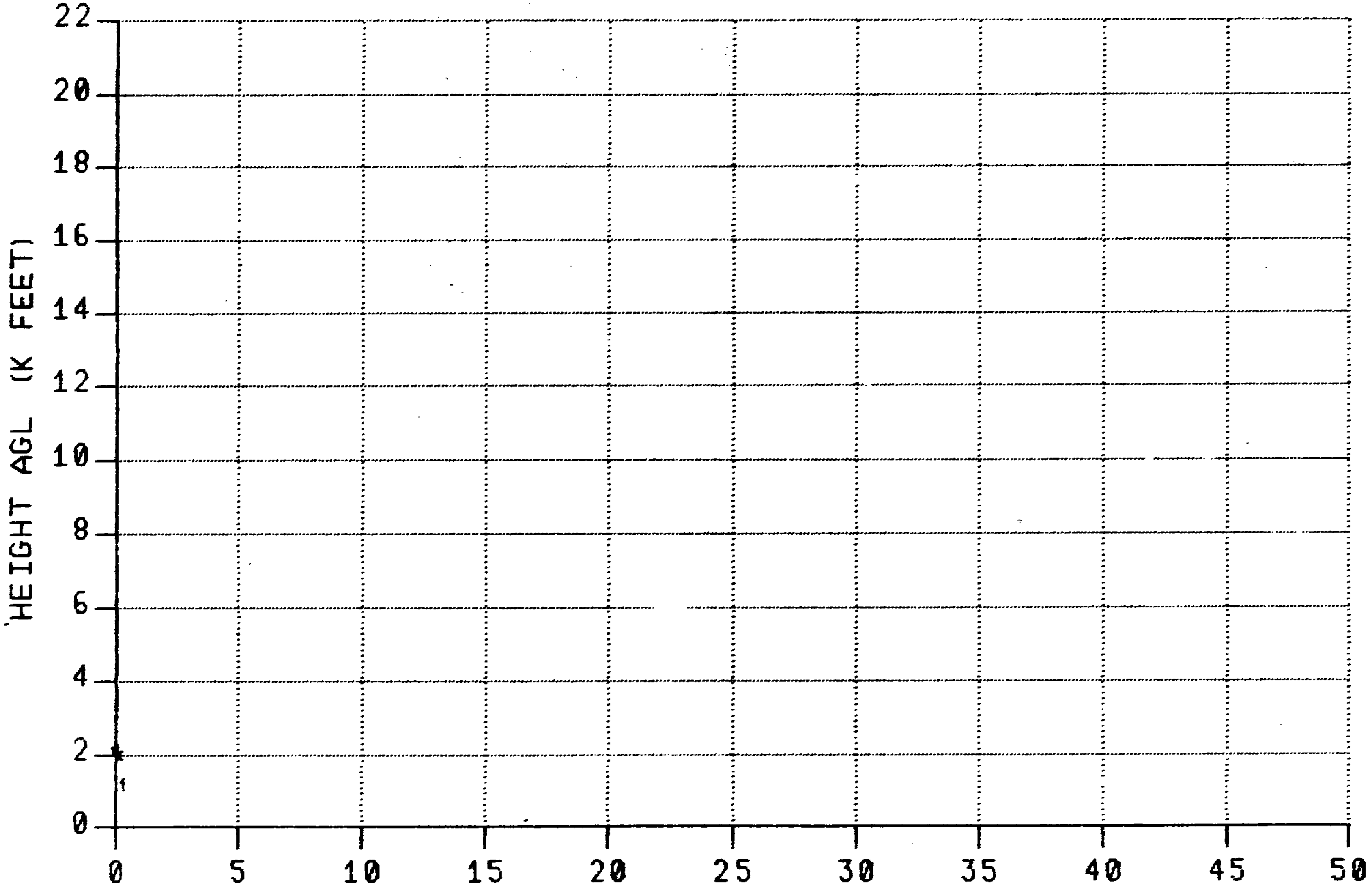
CLOUD COVER: CLR-SCT

BKGND. REFLECTANCE: 00 TO 14 PERCENT
SOLAR ELEV. ANGLE : 0 TO 10 DEGREE
SURFACE VISIBILITY: 15 MILES (24.1 KM)
MIXING LYR. DEPTH : 3000 FEET



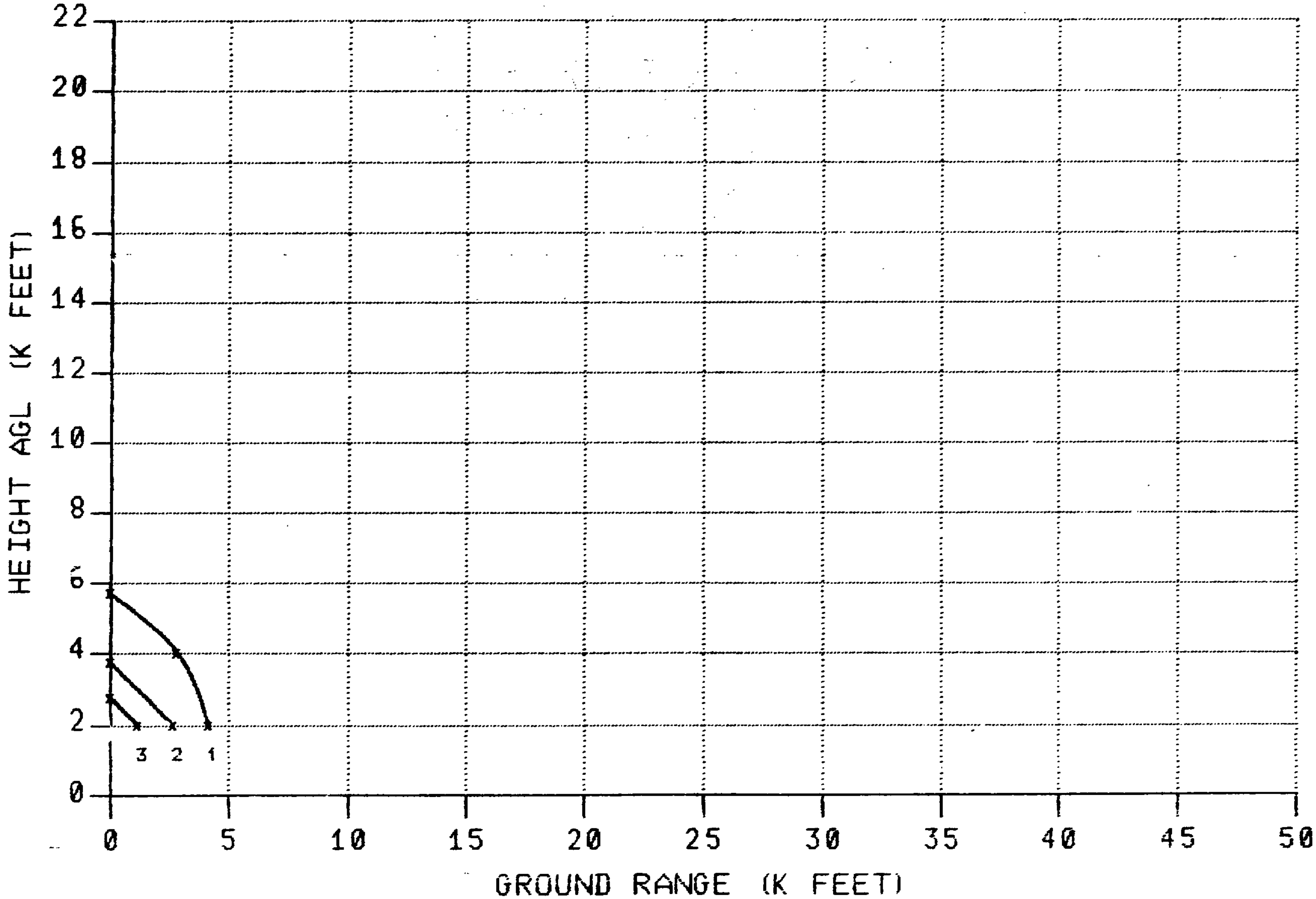
CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

CLOUD COVER: CLR-SCT BKGND. REFLECTANCE: 00 TO 14 PERCENT
SOLAR ELEV. ANGLE : 0 TO 10 DEGREE
SURFACE VISIBILITY: 1 MILE (1.6 KM)
MIXING LYR. DEPTH : 6000 FEET



CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

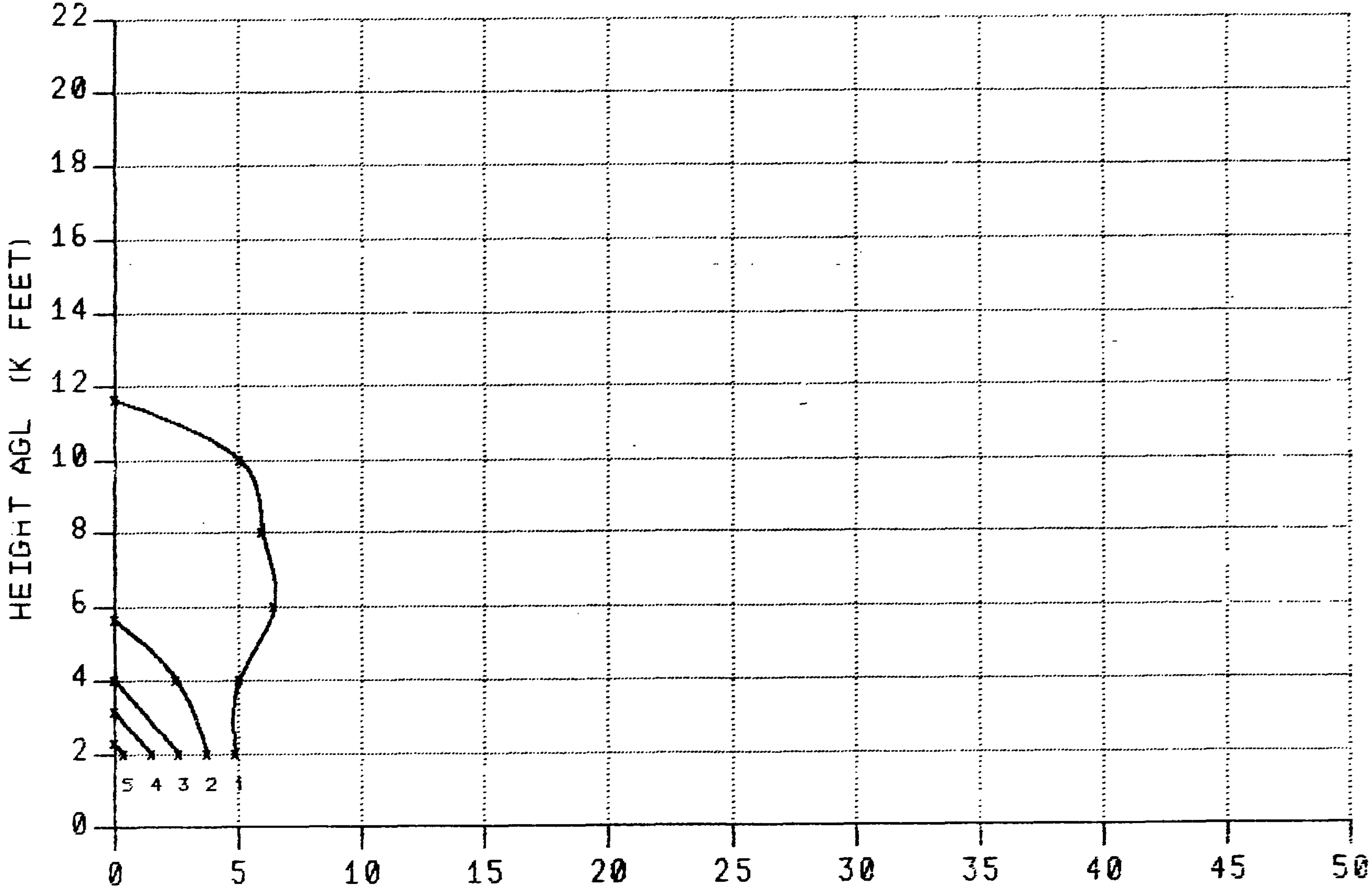
CLOUD COVER: CLR-SCT BKGND. REFLECTANCE: 00 TO 14 PERCENT
SOLAR ELEV. ANGLE : 0 TO 10 DEGREE
SURFACE VISIBILITY: 3 MILES (4.8 KM)
MIXING LYR. DEPTH : 6000 FEET



CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

CLOUD COVER: CLR-SCT

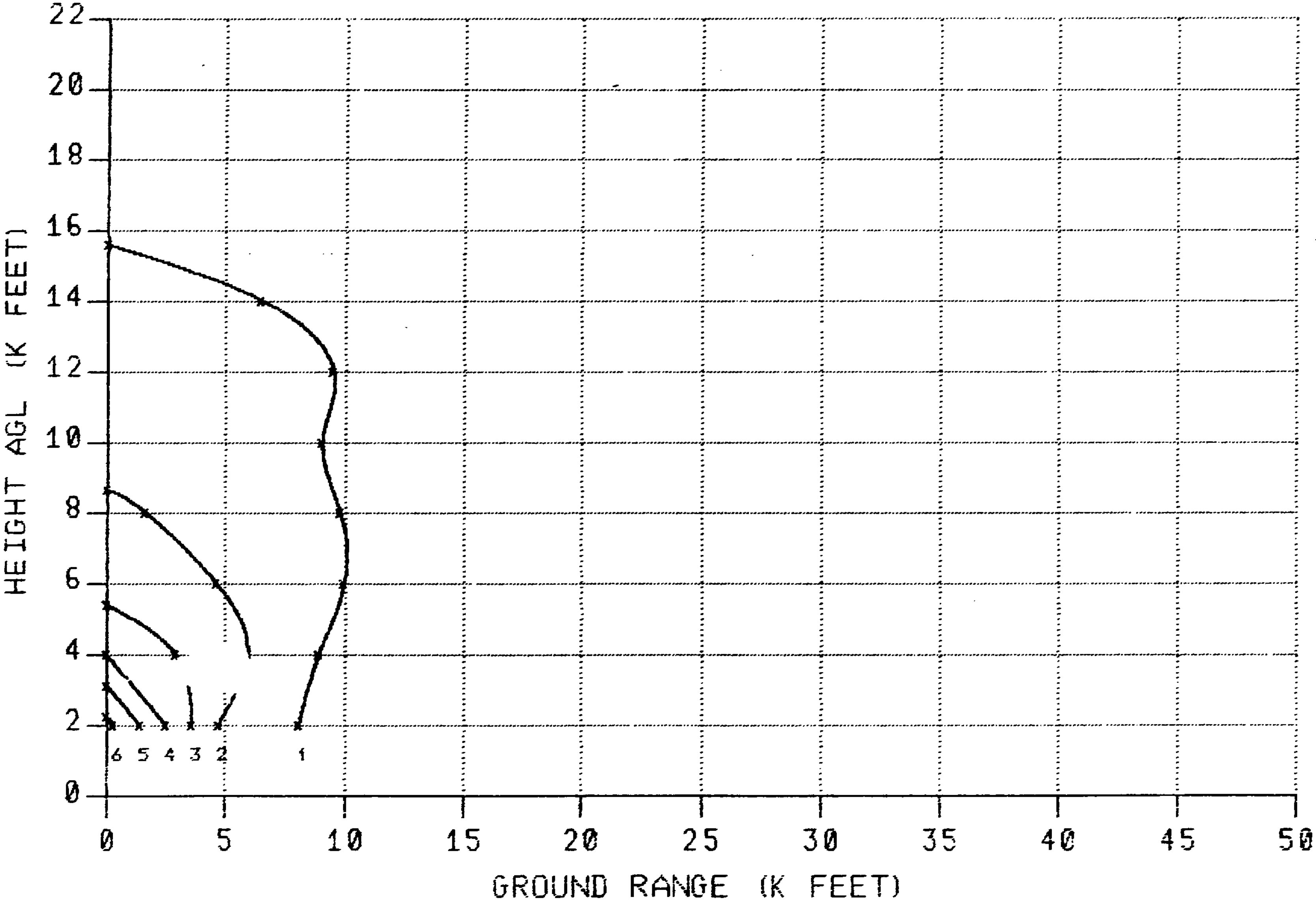
BKGND. REFLECTANCE: 00 TO 14 PERCENT
SOLAR ELEV. ANGLE : 0 TO 10 DEGREE
SURFACE VISIBILITY: 5 MILES (8.0 KM)
MIXING LYR. DEPTH : 6000 FEET



CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

CLOUD COVER: CLR-SCT

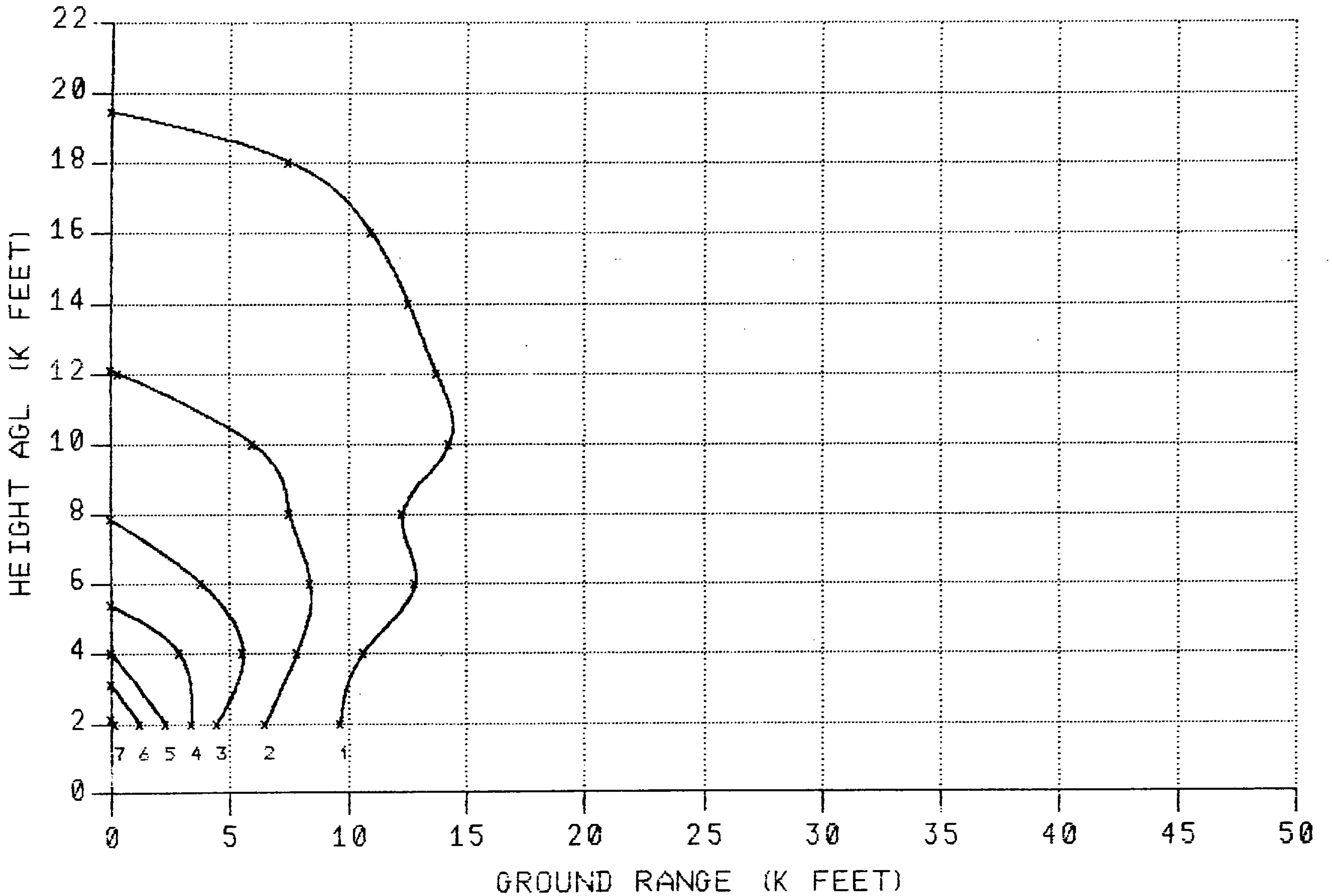
BKGND. REFLECTANCE: 00 TO 14 PERCENT
SOLAR ELEV. ANGLE : 0 TO 10 DEGREE
SURFACE VISIBILITY: 7 MILES (11.3 KM)
MIXING LYR. DEPTH : 6000 FEET



CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

CLOUD COVER: CLR-SCT

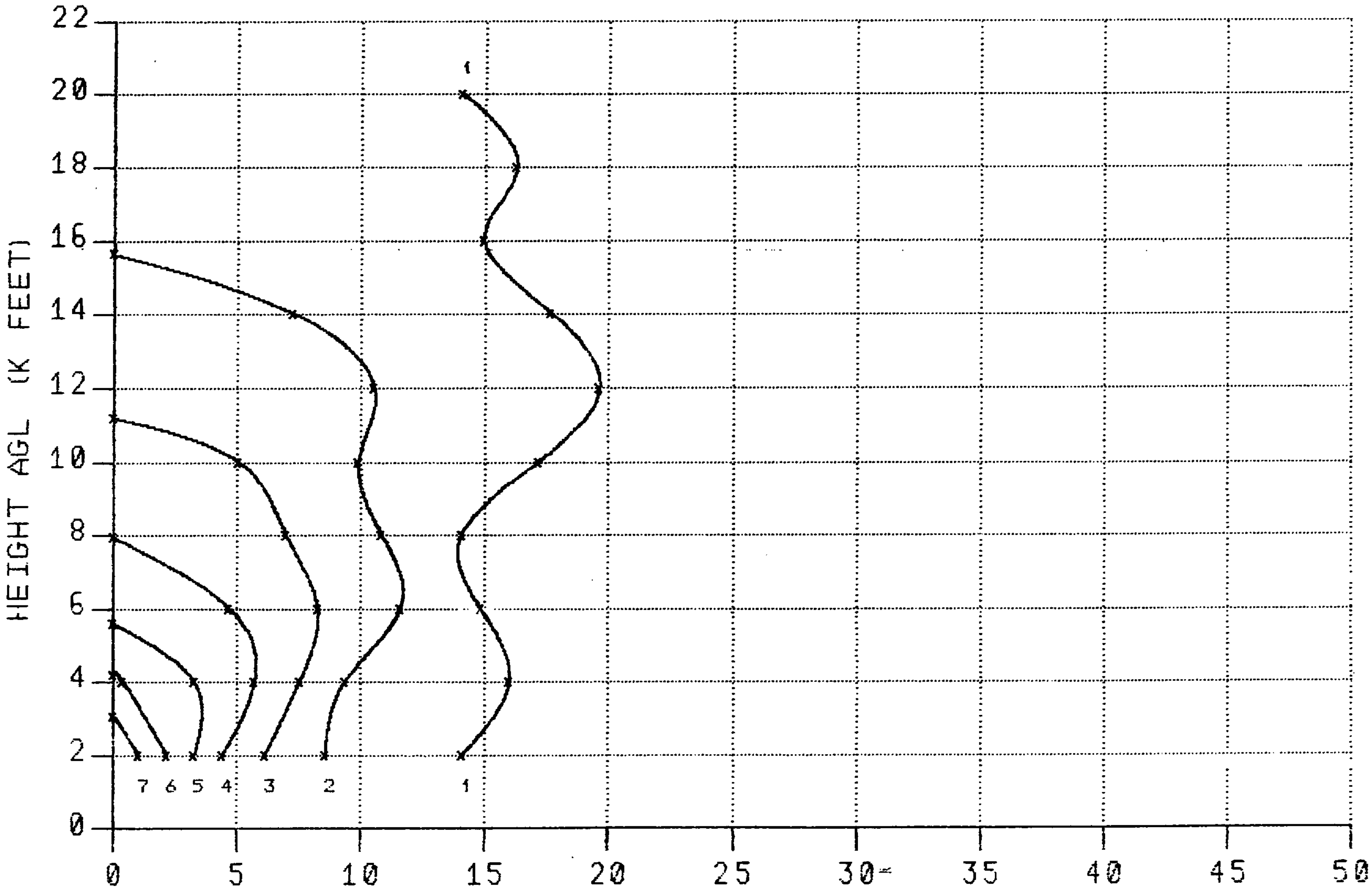
BKGND. REFLECTANCE: 00 TO 14 PERCENT
SOLAR ELEV. ANGLE : 0 TO 10 DEGREE
SURFACE VISIBILITY: 10 MILES (16.1 KM)
MIXING LYR. DEPTH : 6000 FEET



CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

CLOUD COVER: CLR-SCT

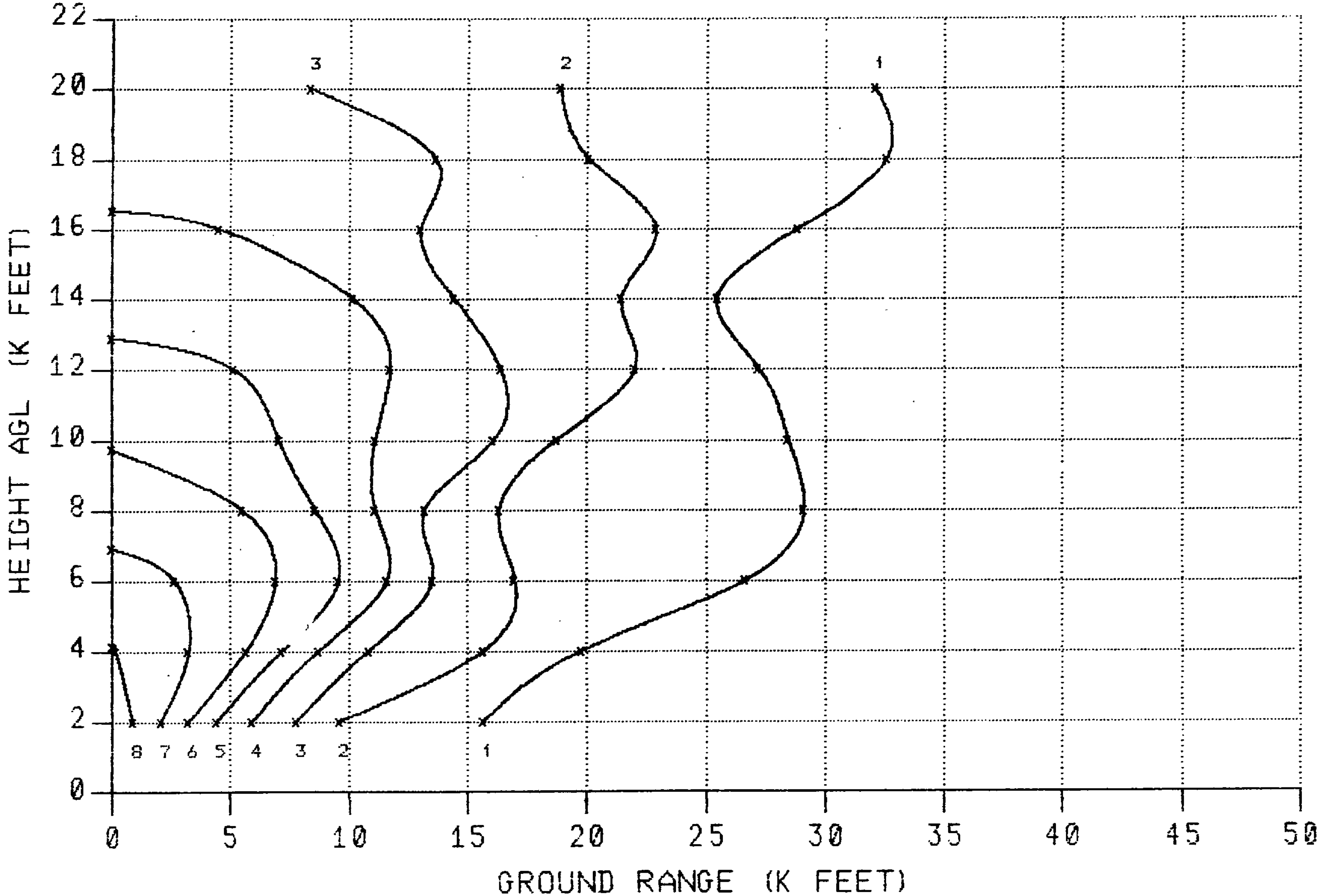
BKGND. REFLECTANCE: 00 TO 14 PERCENT
SOLAR ELEV. ANGLE : 0 TO 10 DEGREE
SURFACE VISIBILITY: 15 MILES (24.1 KM)
MIXING LYR. DEPTH : 6000 FEET



CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

CLOUD COVER: CLR-SCT

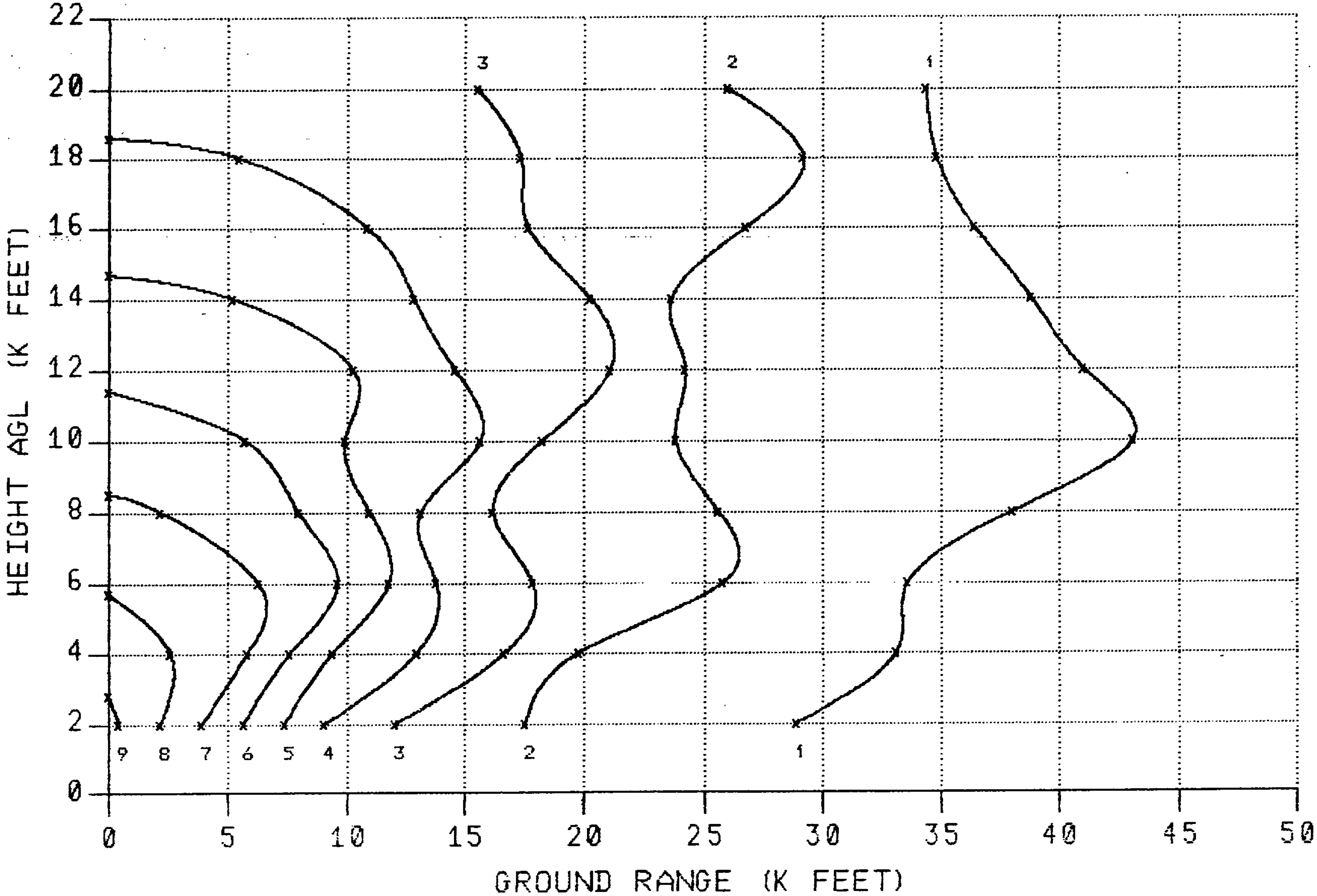
BKGND. REFLECTANCE: 00 TO 14 PERCENT
SOLAR ELEV. ANGLE : 11 TO 30 DEGREE
SURFACE VISIBILITY: 1 MILE (1.6 KM)
MIXING LYR. DEPTH : BELOW 50 FEET



CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

CLOUD COVER: CLR-SCT

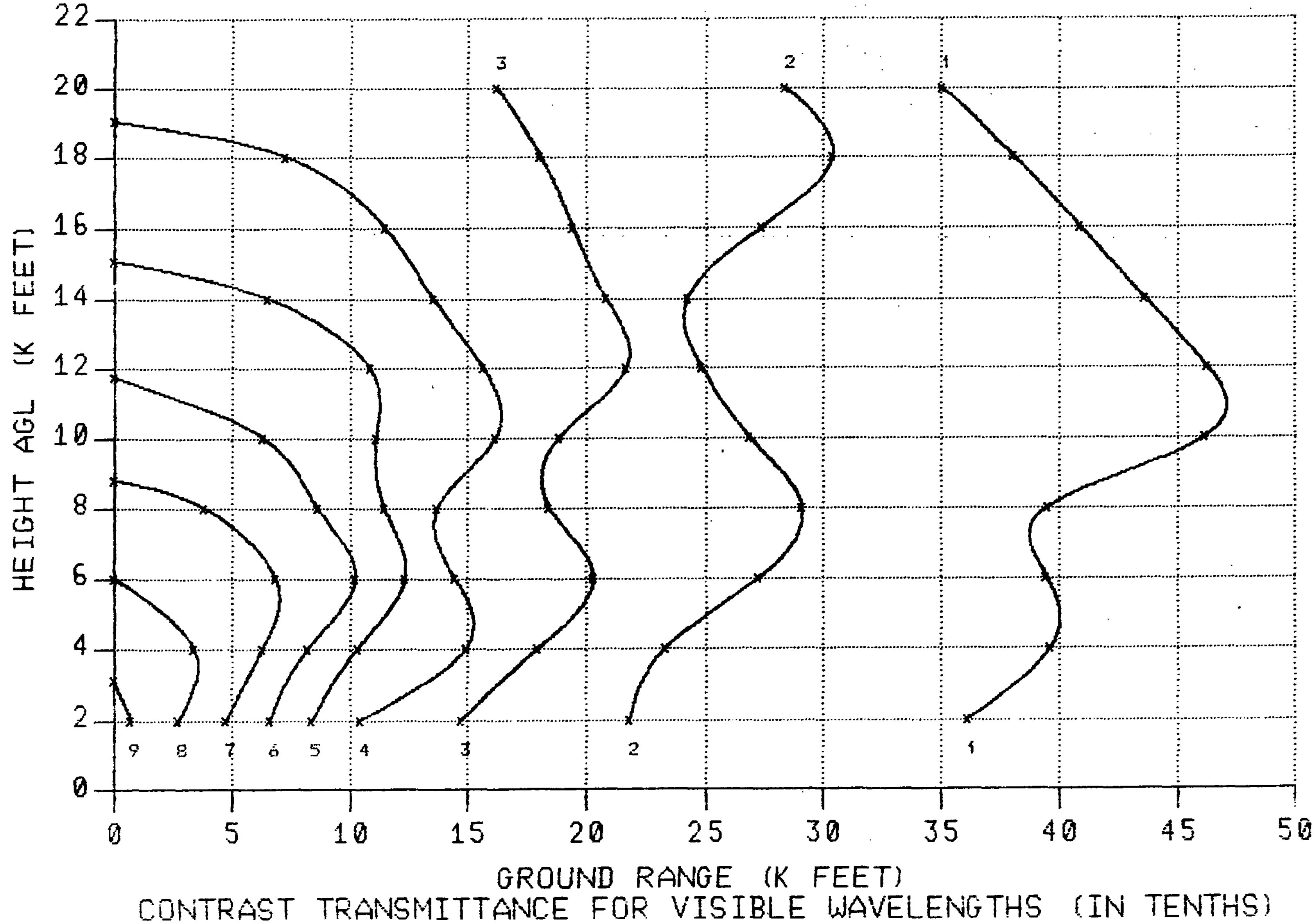
BKGND. REFLECTANCE: 00 TO 14 PERCENT
SOLAR ELEV. ANGLE : 11 TO 30 DEGREE
SURFACE VISIBILITY: 3 MILES (4.8 KM)
MIXING LYR. DEPTH : BELOW 50 FEET



CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

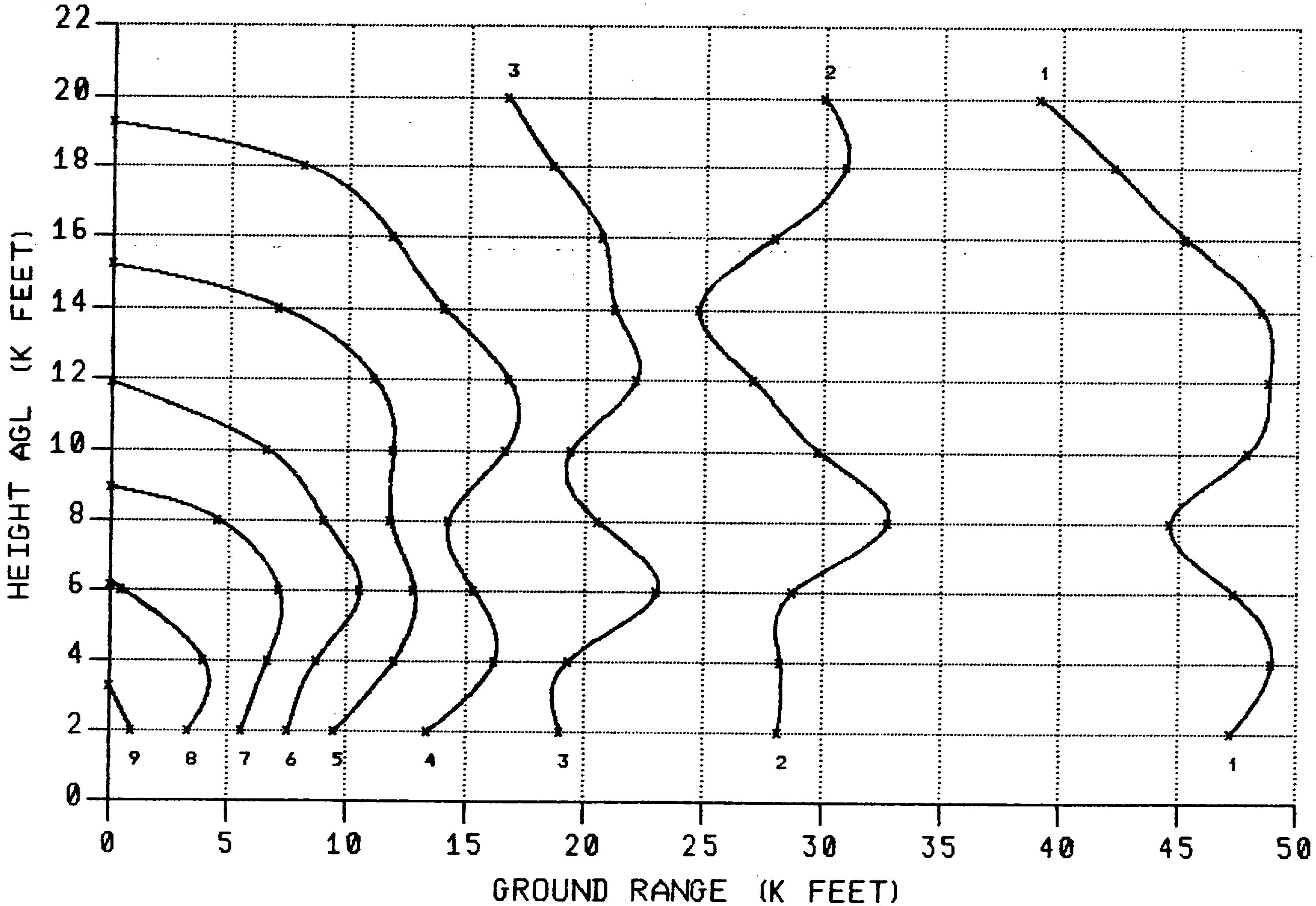
CLOUD COVER: CLR-SCT

BKGND. REFLECTANCE: 00 TO 14 PERCENT
SOLAR ELEV. ANGLE : 11 TO 30 DEGREE
SURFACE VISIBILITY: 5 MILES (8.0 KM)
MIXING LYR. DEPTH : BELOW 50 FEET



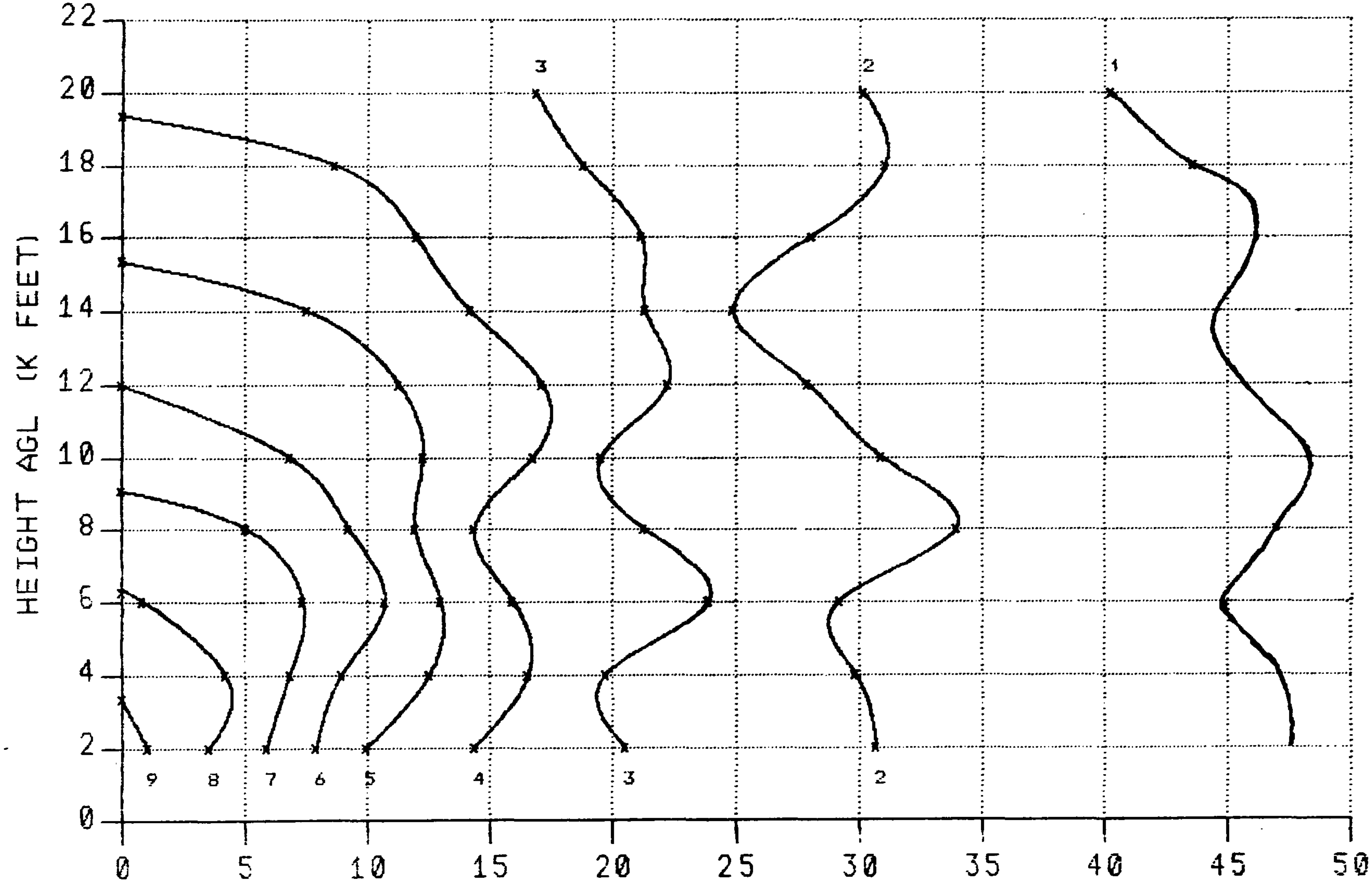
CLOUD COVER: CLR-SCT

BKGND. REFLECTANCE: 00 TO 14 PERCENT
SOLAR ELEV. ANGLE : 11 TO 30 DEGREE
SURFACE VISIBILITY: 7 MILES (11.3 KM)
MIXING LYR. DEPTH : BELOW 50 FEET



CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

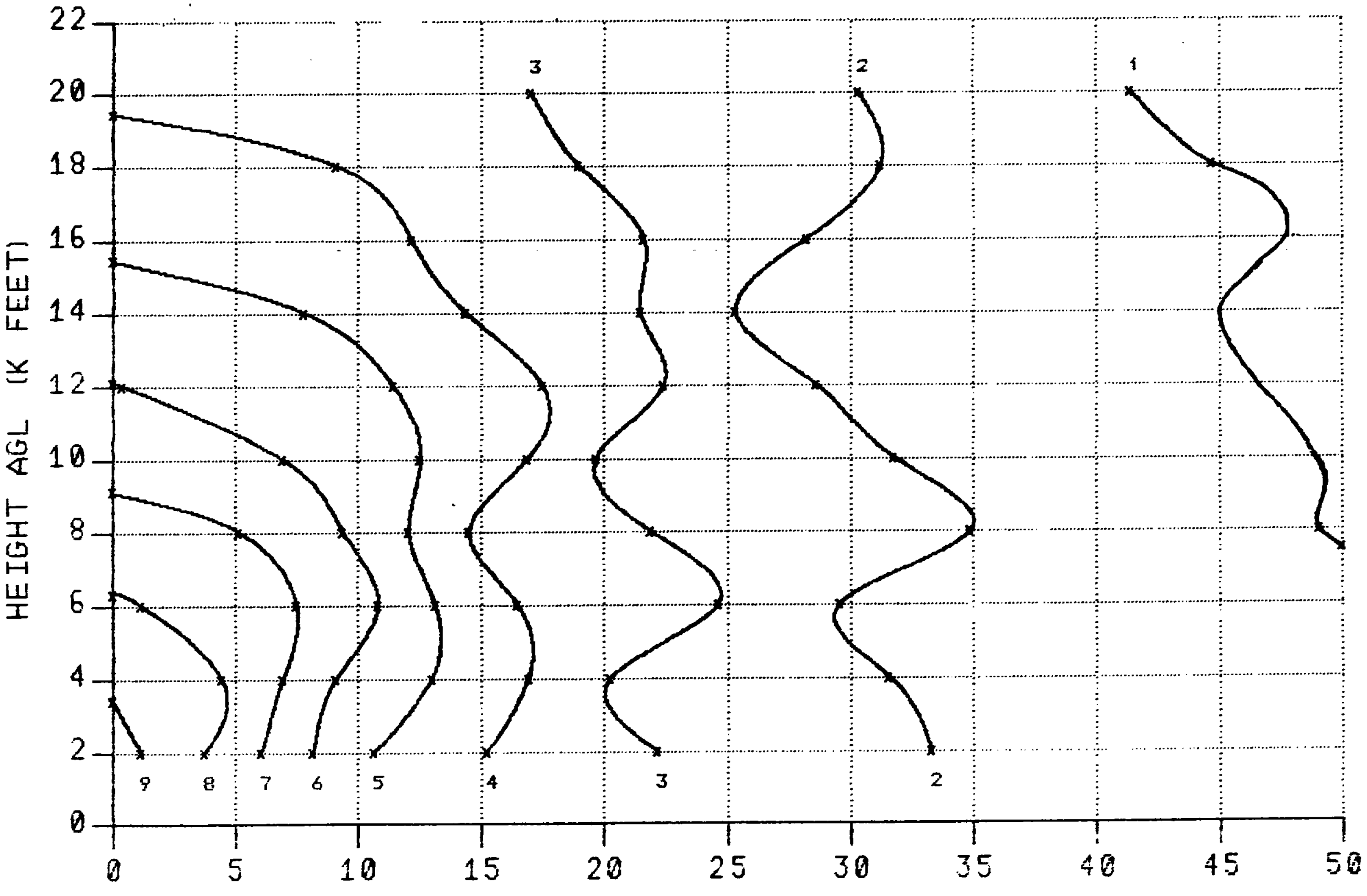
CLOUD COVER: CLR-SCT BKGND. REFLECTANCE: 00 TO 14 PERCENT
SOLAR ELEV. ANGLE : 11 TO 30 DEGREE
SURFACE VISIBILITY: 10 MILES (16.1 KM)
MIXING LYR. DEPTH : BELOW 50 FEET



GROUND RANGE (K FEET)
CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

CLOUD COVER: CLR-SCT

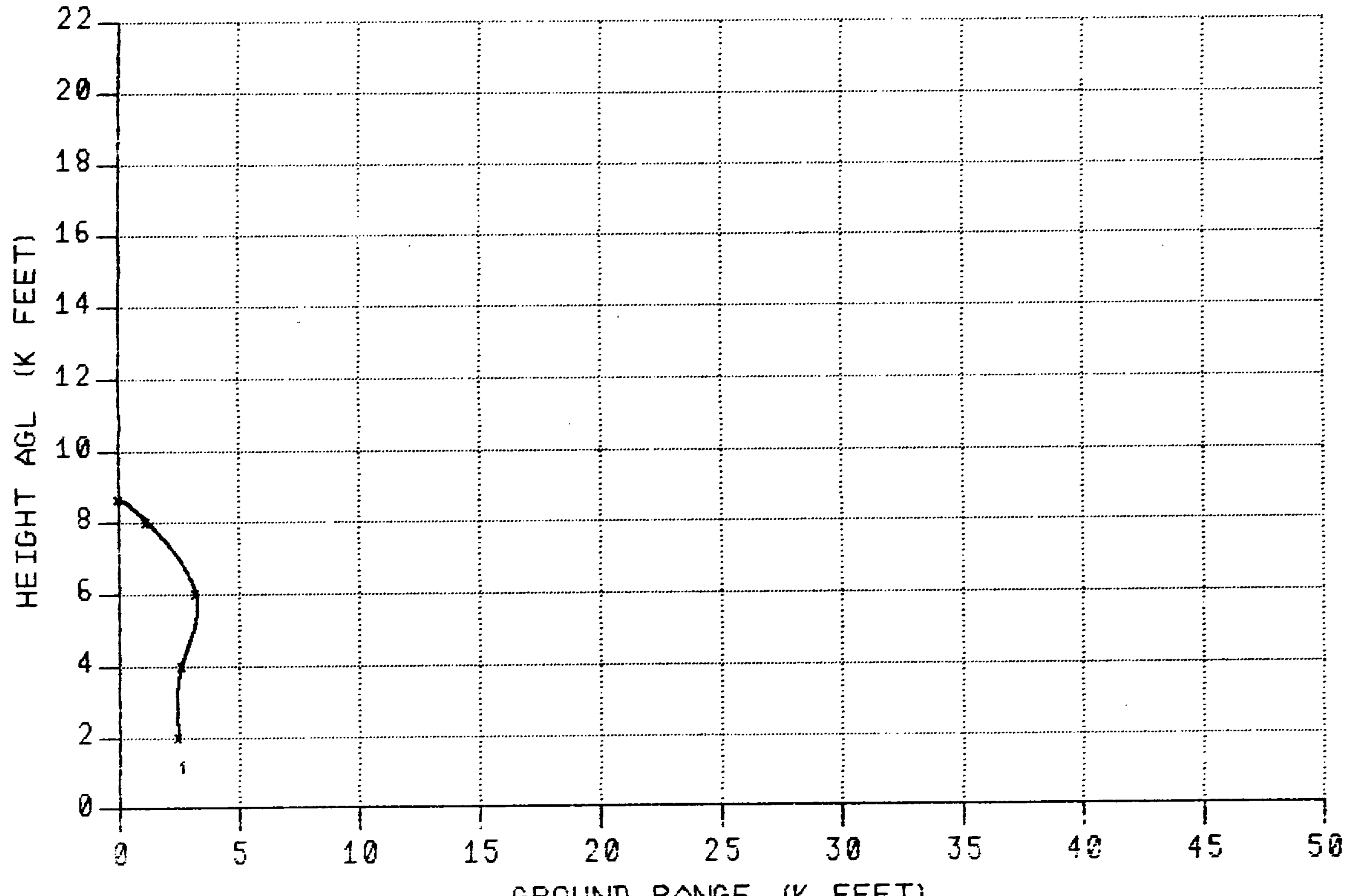
BKGND. REFLECTANCE: 00 TO 14 PERCENT
SOLAR ELEV. ANGLE : 11 TO 30 DEGREE
SURFACE VISIBILITY: 15 MILES (24.1 KM)
MIXING LYR. DEPTH : BELOW 50 FEET



CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

CLOUD COVER: CLR-SCT

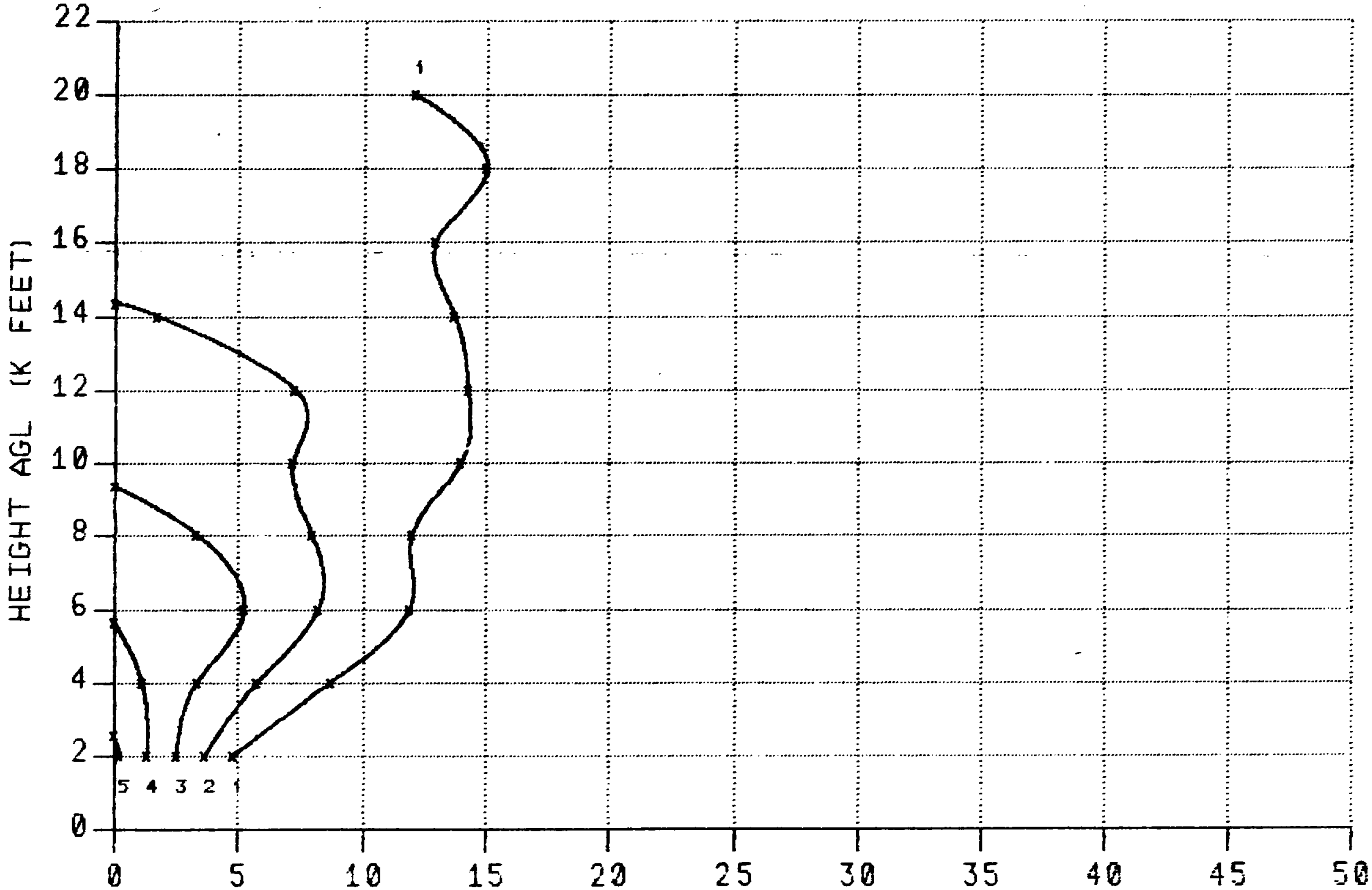
BKGND. REFLECTANCE: 00 TO 14 PERCENT
SOLAR ELEV. ANGLE : 11 TO 30 DEGREE
SURFACE VISIBILITY: 1 MILE (1.6 KM)
MIXING LYR. DEPTH : 1500 FEET



CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

CLOUD COVER: CLR-SCT

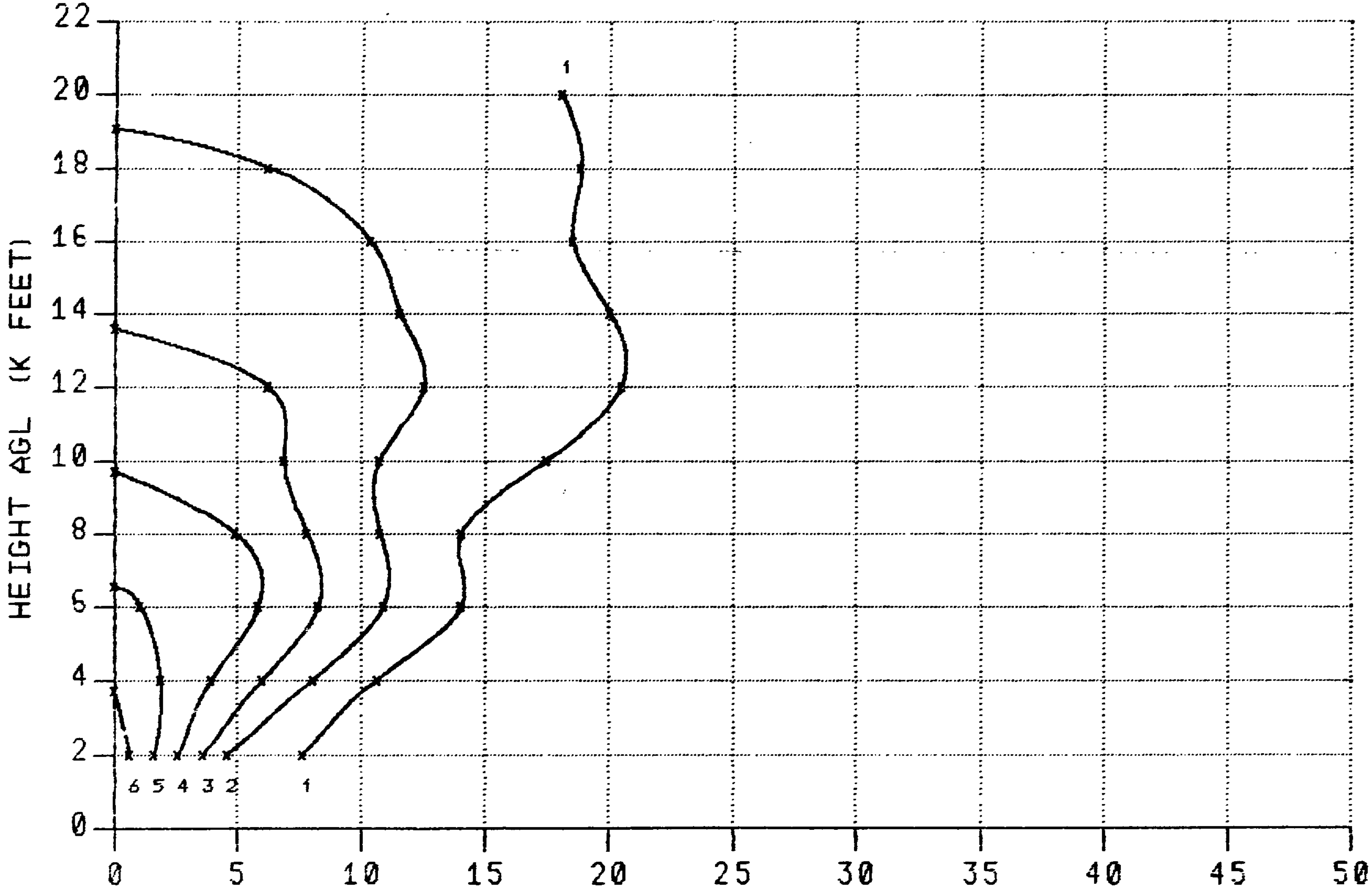
BKGND. REFLECTANCE: 00 TO 14 PERCENT
SOLAR ELEV. ANGLE : 11 TO 30 DEGREE
SURFACE VISIBILITY: 3 MILES (4.8 KM)
MIXING LYR. DEPTH : 1500 FEET



CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

CLOUD COVER: CLR-SCT

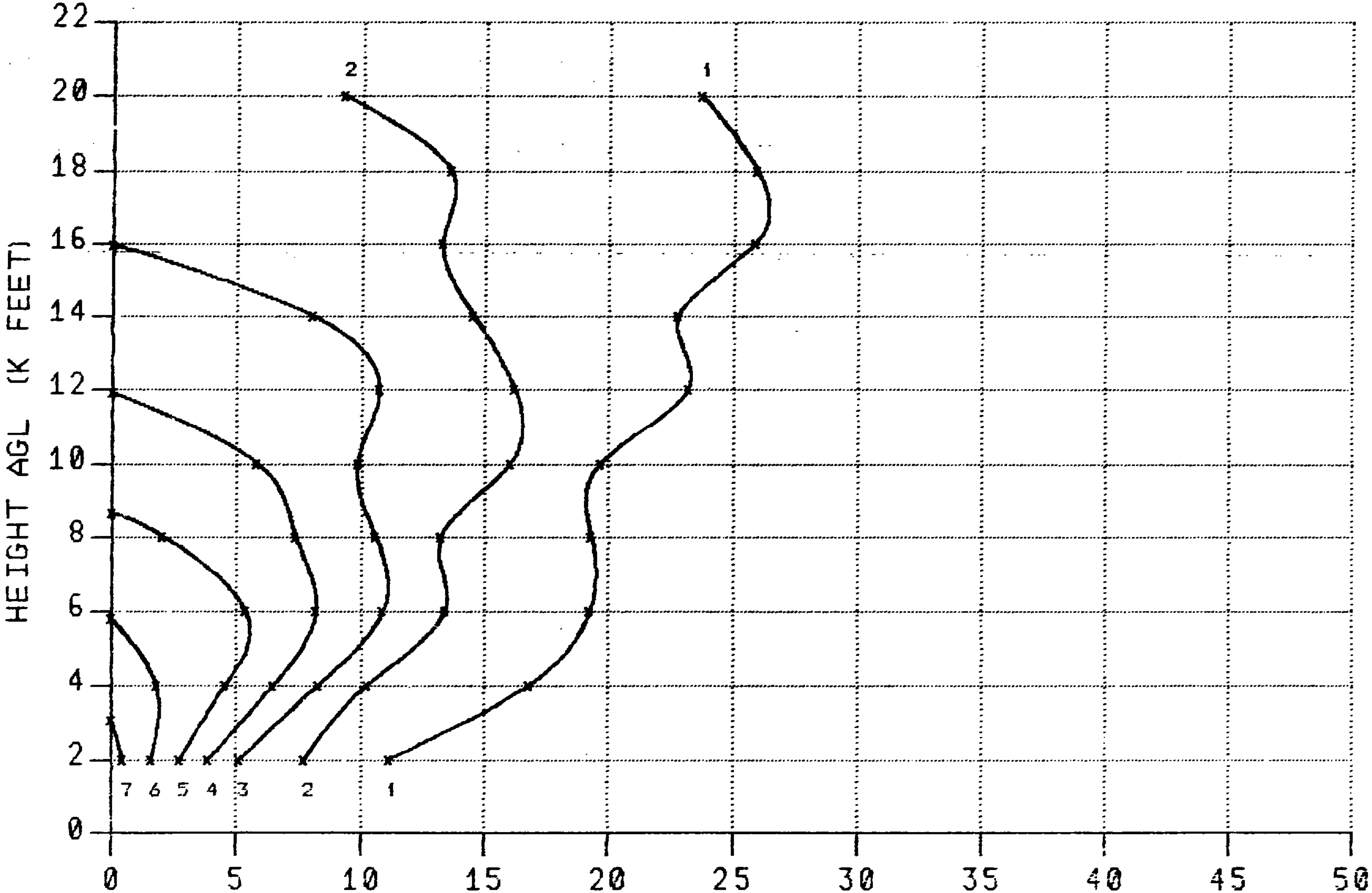
BKGND. REFLECTANCE: 00 TO 14 PERCENT
SOLAR ELEV. ANGLE : 11 TO 30 DEGREE
SURFACE VISIBILITY: 5 MILES (8.0 KM)
MIXING LYR. DEPTH : 1500 FEET



CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

CLOUD COVER: CLR-SCT

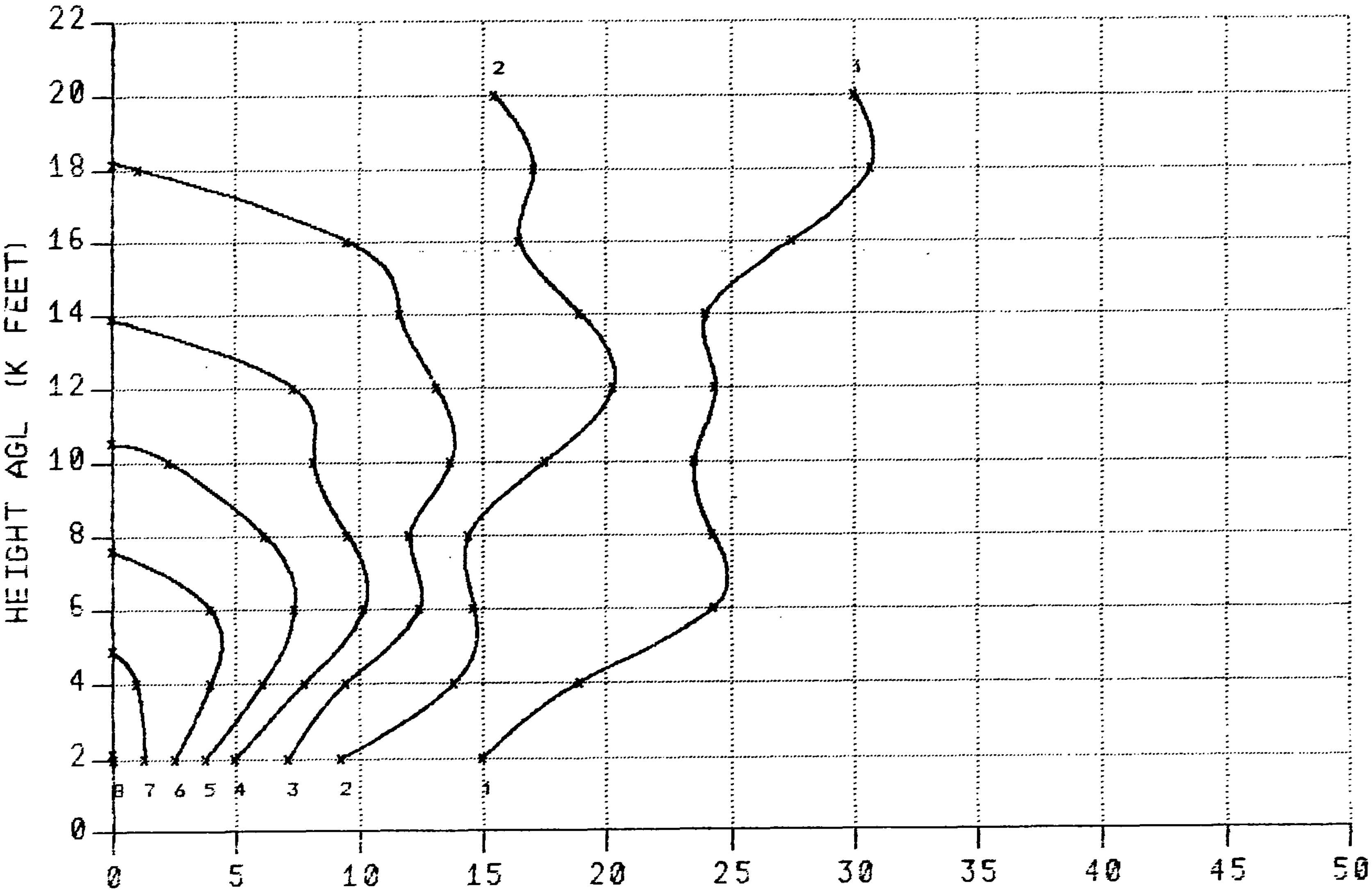
BKGND. REFLECTANCE: 00 TO 14 PERCENT
SOLAR ELEV. ANGLE : 11 TO 30 DEGREE
SURFACE VISIBILITY: 7 MILES (11.3 KM)
MIXING LYR. DEPTH : 1500 FEET



CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

CLOUD COVER: CLR-SCT

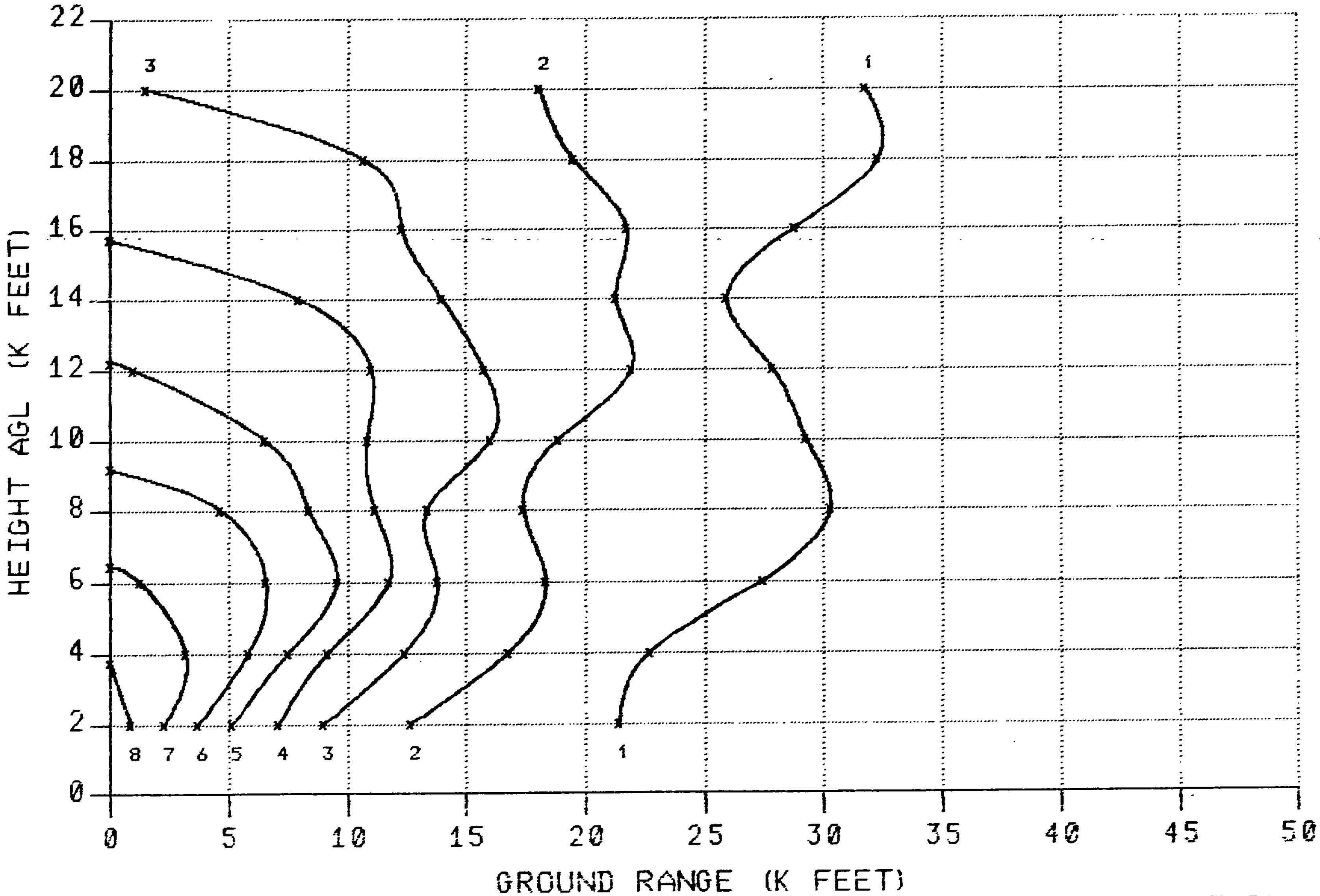
BKGND. REFLECTANCE: 00 TO 14 PERCENT
SOLAR ELEV. ANGLE : 11 TO 30 DEGREE
SURFACE VISIBILITY: 10 MILES (16.1 KM)
MIXING LYR. DEPTH : 1500 FEET



GROUND RANGE (K FEET)
CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

CLOUD COVER: CLR-SCT

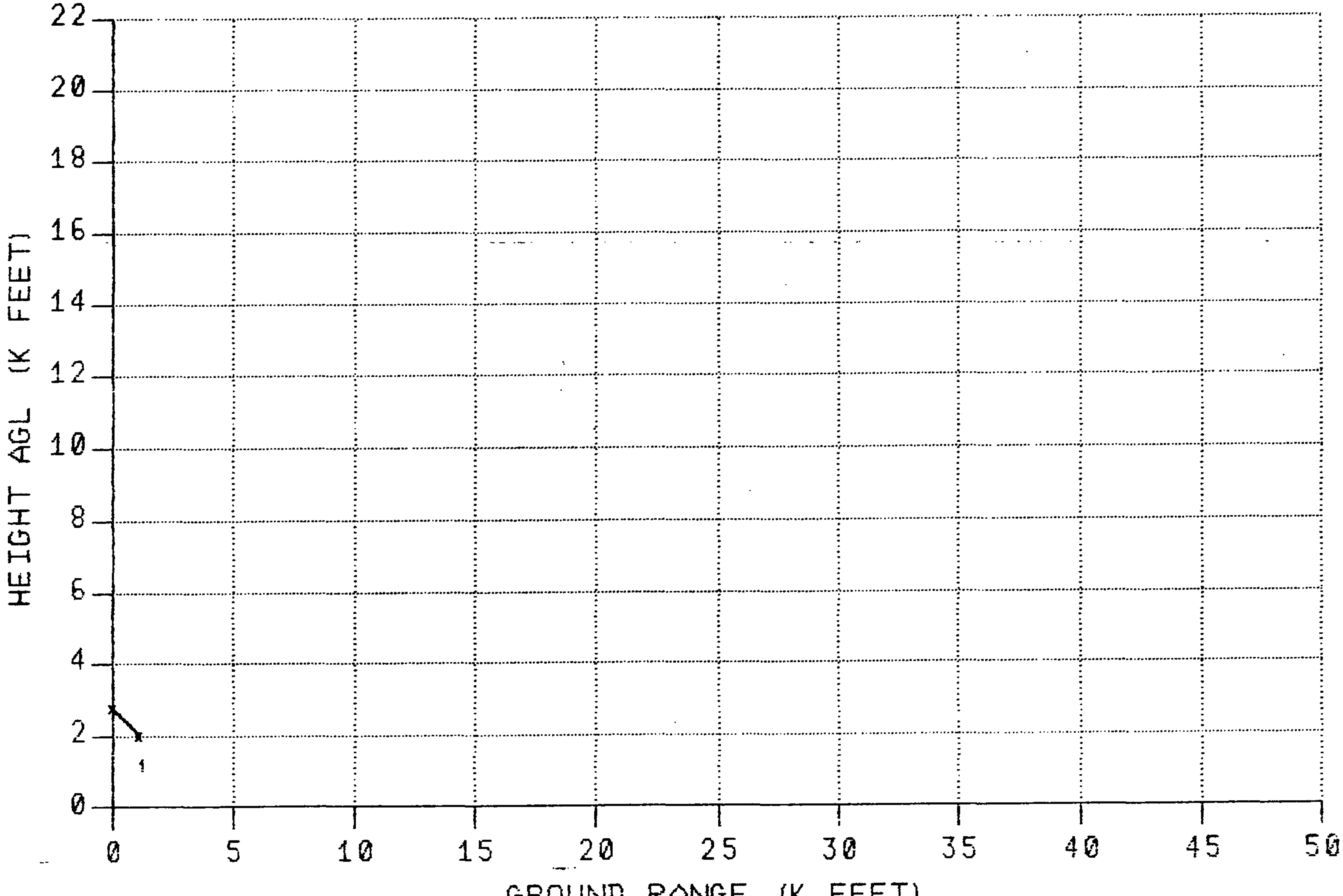
BKGND. REFLECTANCE: 00 TO 14 PERCENT
SOLAR ELEV. ANGLE : 11 TO 30 DEGREE
SURFACE VISIBILITY: 15 MILES (24.1 KM)
MIXING LYR. DEPTH : 1500 FEET



CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

CLOUD COVER: CLR-SCT

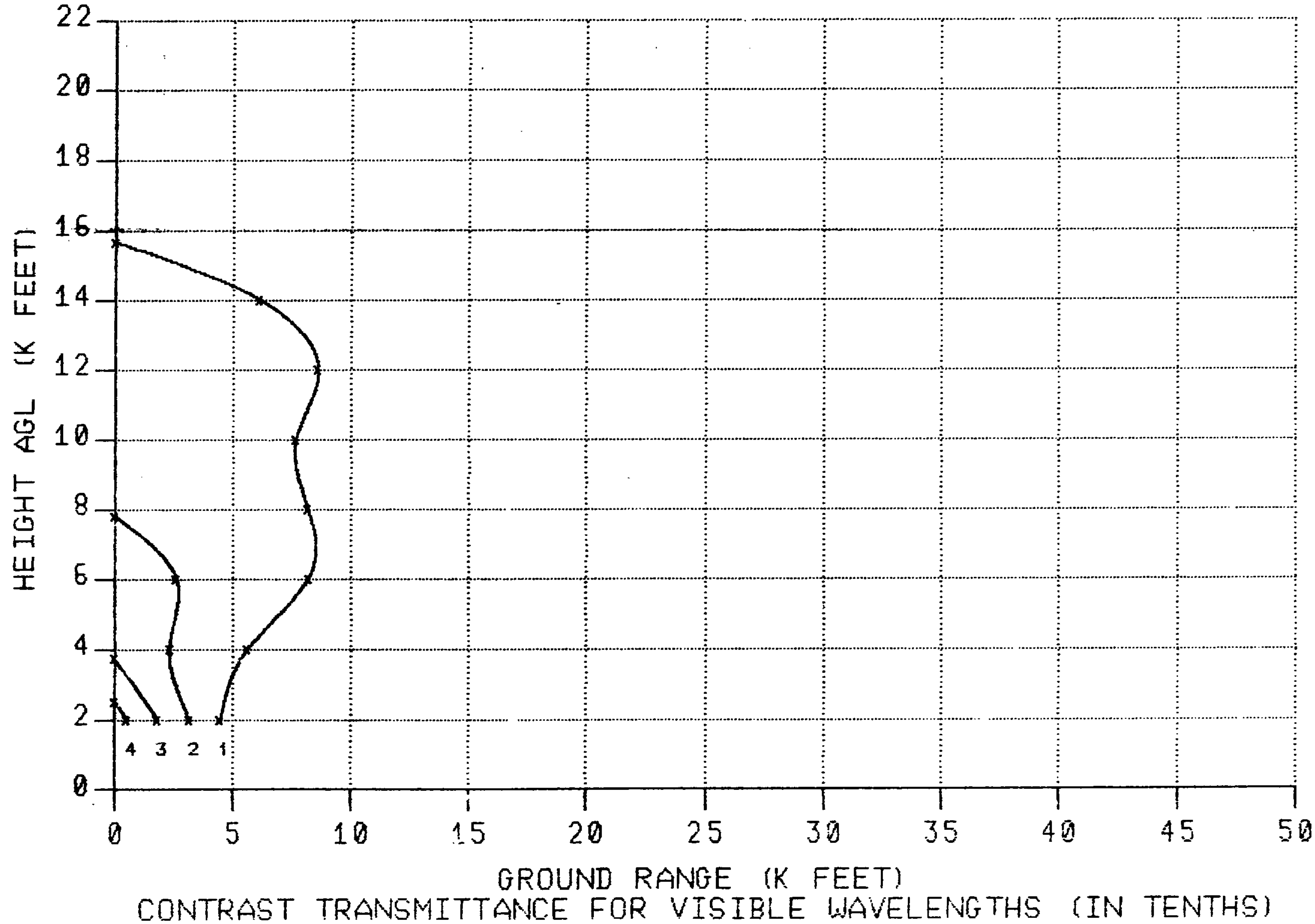
BKGND. REFLECTANCE: 00 TO 14 PERCENT
SOLAR ELEV. ANGLE : 11 TO 30 DEGREE
SURFACE VISIBILITY: 1 MILE (1.6 KM)
MIXING LYR. DEPTH : 3000 FEET



CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

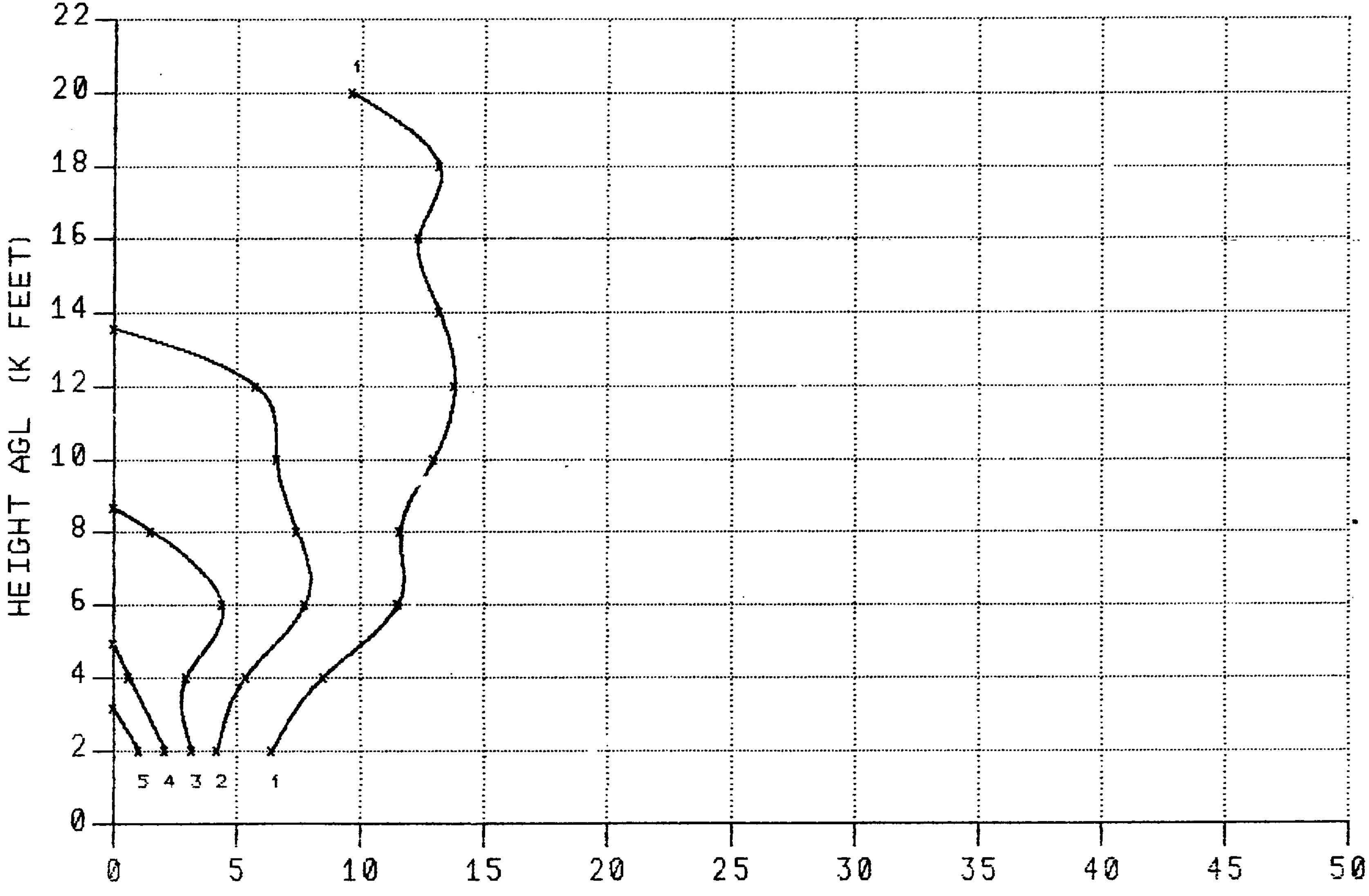
CLOUD COVER: CLR-SCT

BKGND. REFLECTANCE: 00 TO 14 PERCENT
SOLAR ELEV. ANGLE : 11 TO 30 DEGREE
SURFACE VISIBILITY: 3 MILES (4.8 KM)
MIXING LYR. DEPTH : 3000 FEET



CLOUD COVER: CLR-SCT

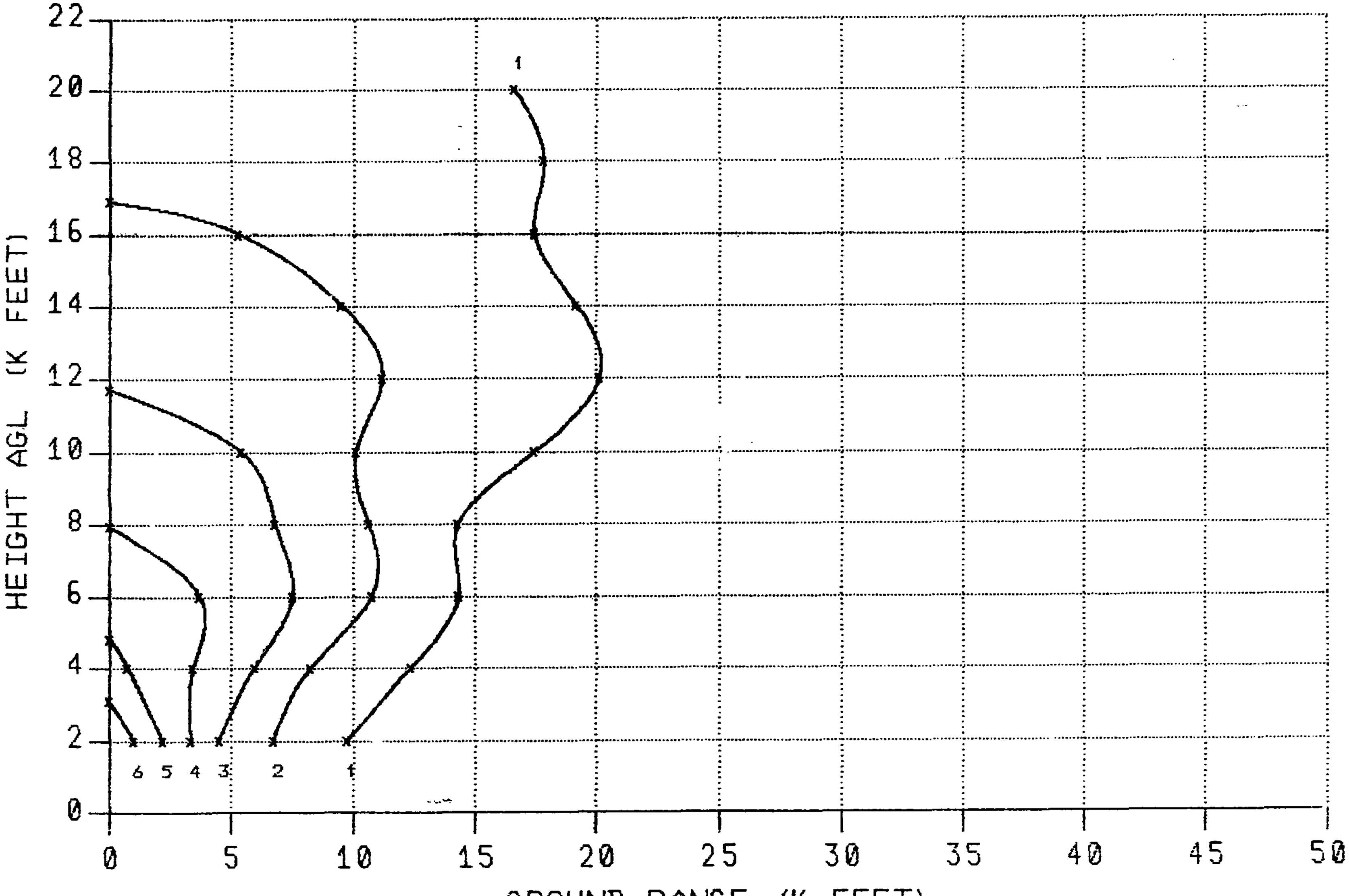
BKGND. REFLECTANCE: 00 TO 14 PERCENT
SOLAR ELEV. ANGLE : 11 TO 30 DEGREE
SURFACE VISIBILITY: 5 MILES (8.0 KM)
MIXING LYR. DEPTH : 3000 FEET



CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

CLOUD COVER: CLR-SCT

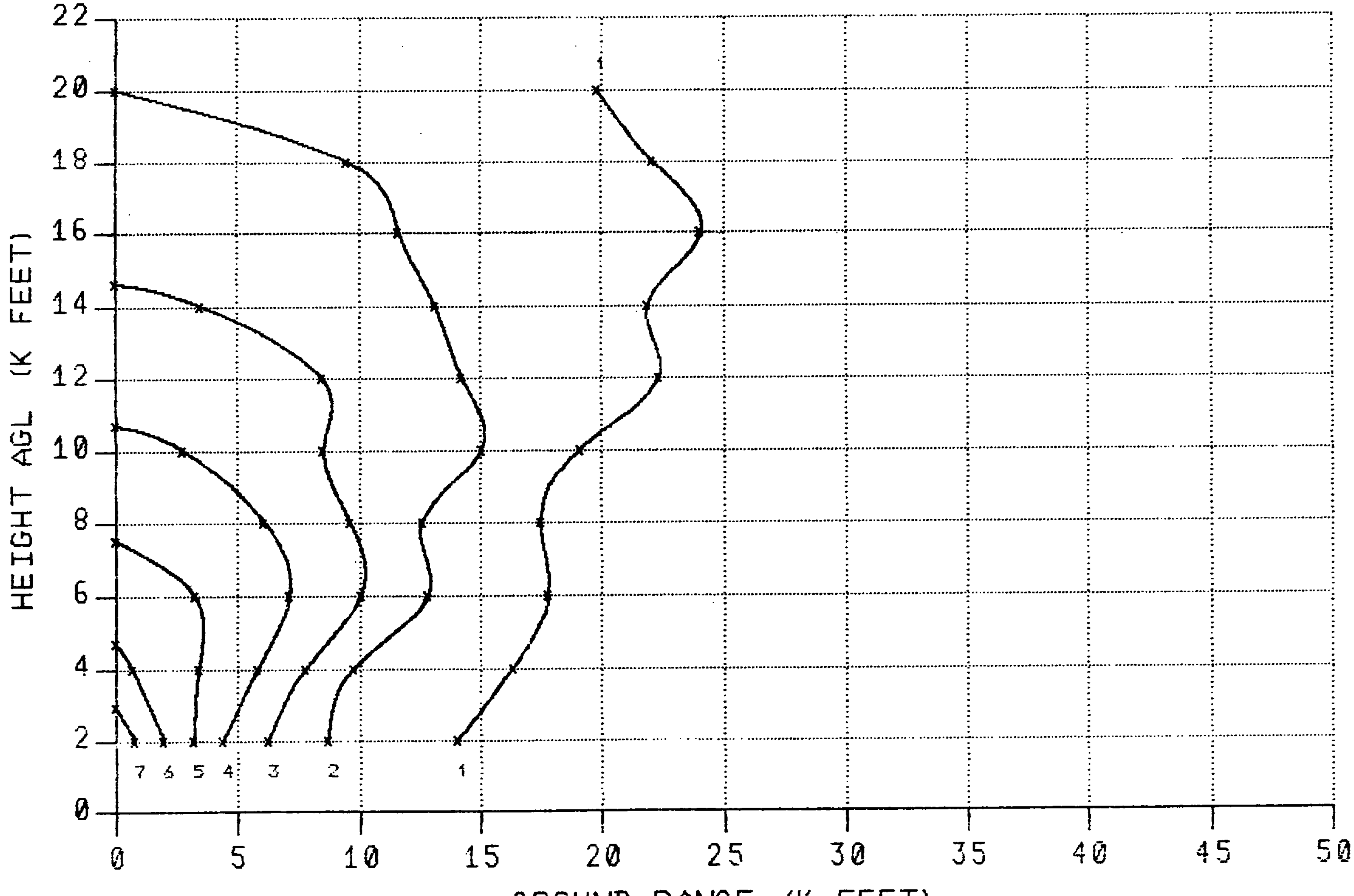
BKGND. REFLECTANCE: 00 TO 14 PERCENT
SOLAR ELEV. ANGLE : 11 TO 30 DEGREE
SURFACE VISIBILITY: 7 MILES (11.3 KM)
MIXING LYR. DEPTH : 3000 FEET



CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

CLOUD COVER: CLR-SCT

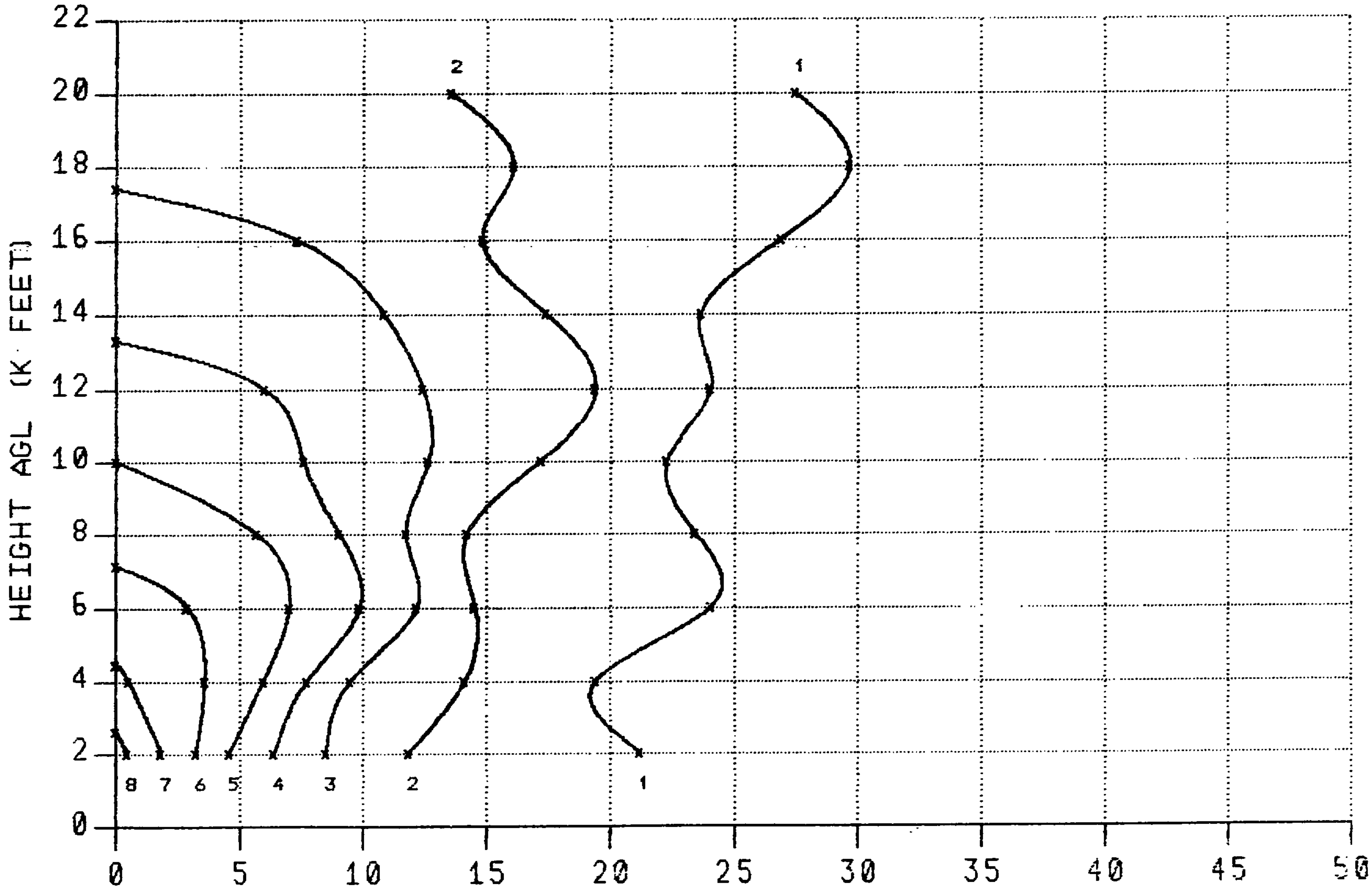
BKGND. REFLECTANCE: 00 TO 14 PERCENT
SOLAR ELEV. ANGLE : 11 TO 30 DEGREE
SURFACE VISIBILITY: 10 MILES (16.1 KM)
MIXING LYR. DEPTH : 3000 FEET



CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

CLOUD COVER: CLR-SCT

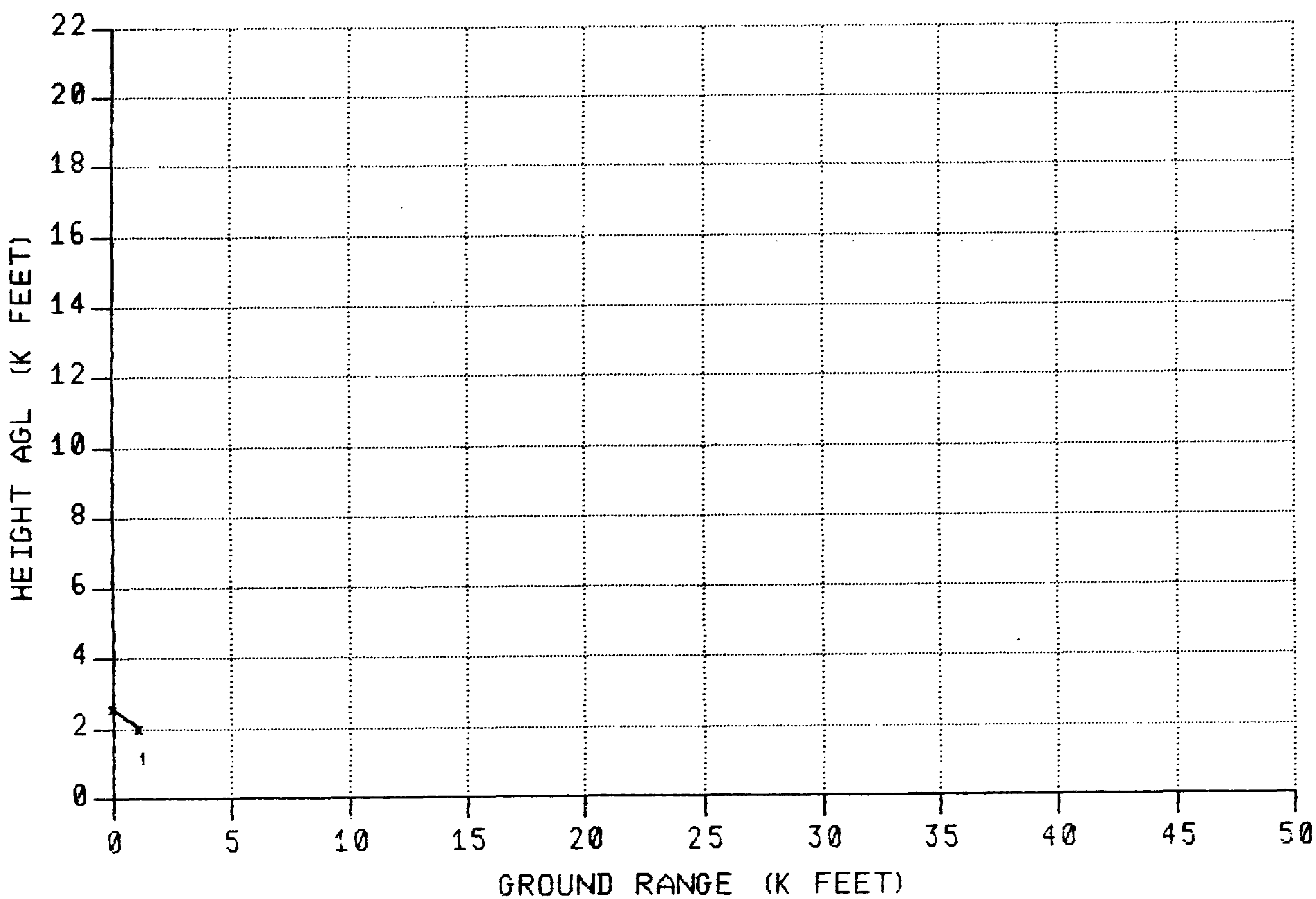
BKGND. REFLECTANCE: 00 TO 14 PERCENT
SOLAR ELEV. ANGLE : 11 TO 30 DEGREE
SURFACE VISIBILITY: 15 MILES (24.1 KM)
MIXING LYR. DEPTH : 3000 FEET



GROUND RANGE (K FEET)
CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

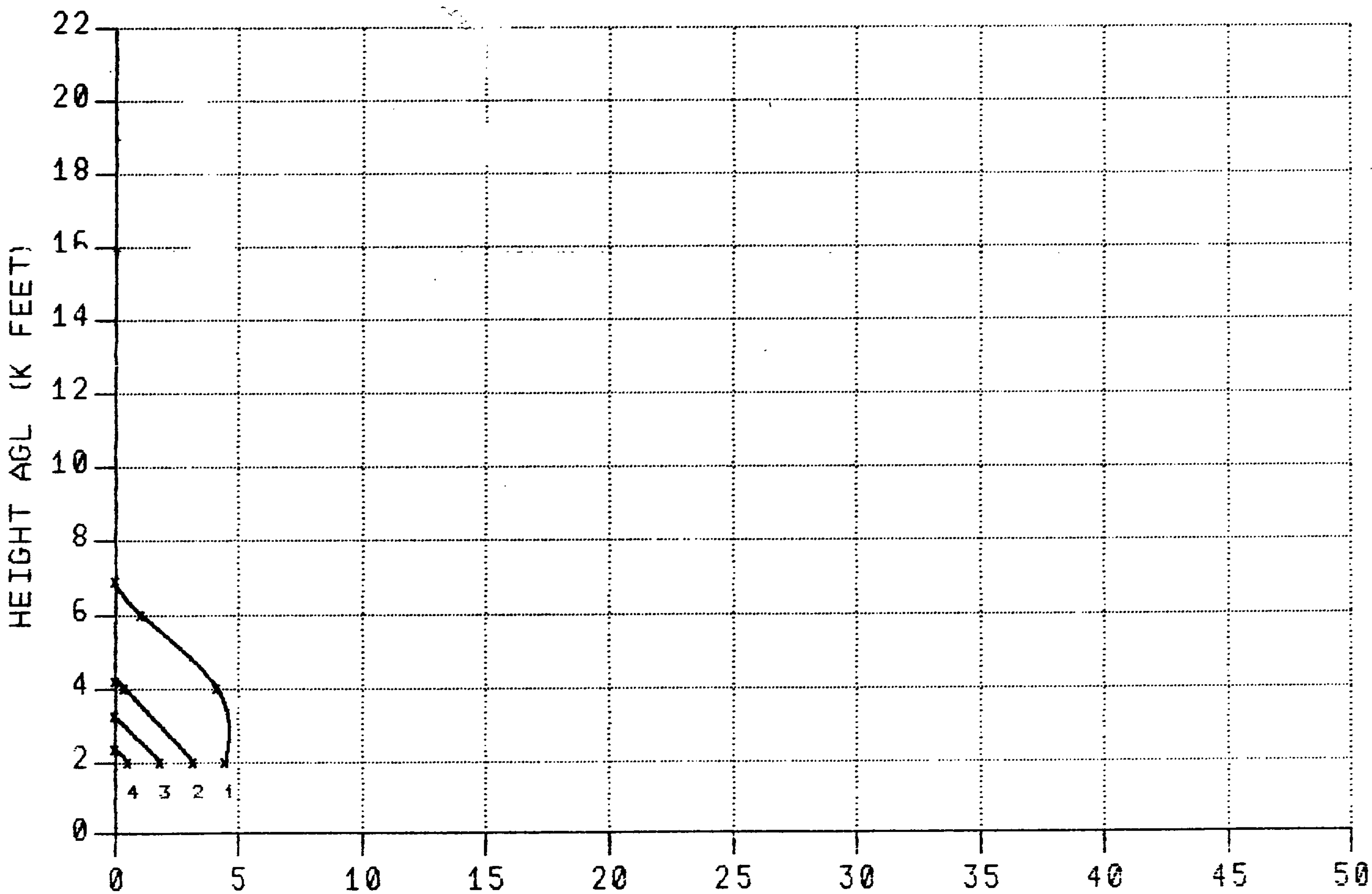
CLOUD COVER: CLR-SCT

BKGND. REFLECTANCE: 00 TO 14 PERCENT
SOLAR ELEV. ANGLE : 11 TO 30 DEGREE
SURFACE VISIBILITY: 1 MILE (1.6 KM)
MIXING LYR. DEPTH : 6000 FEET



CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

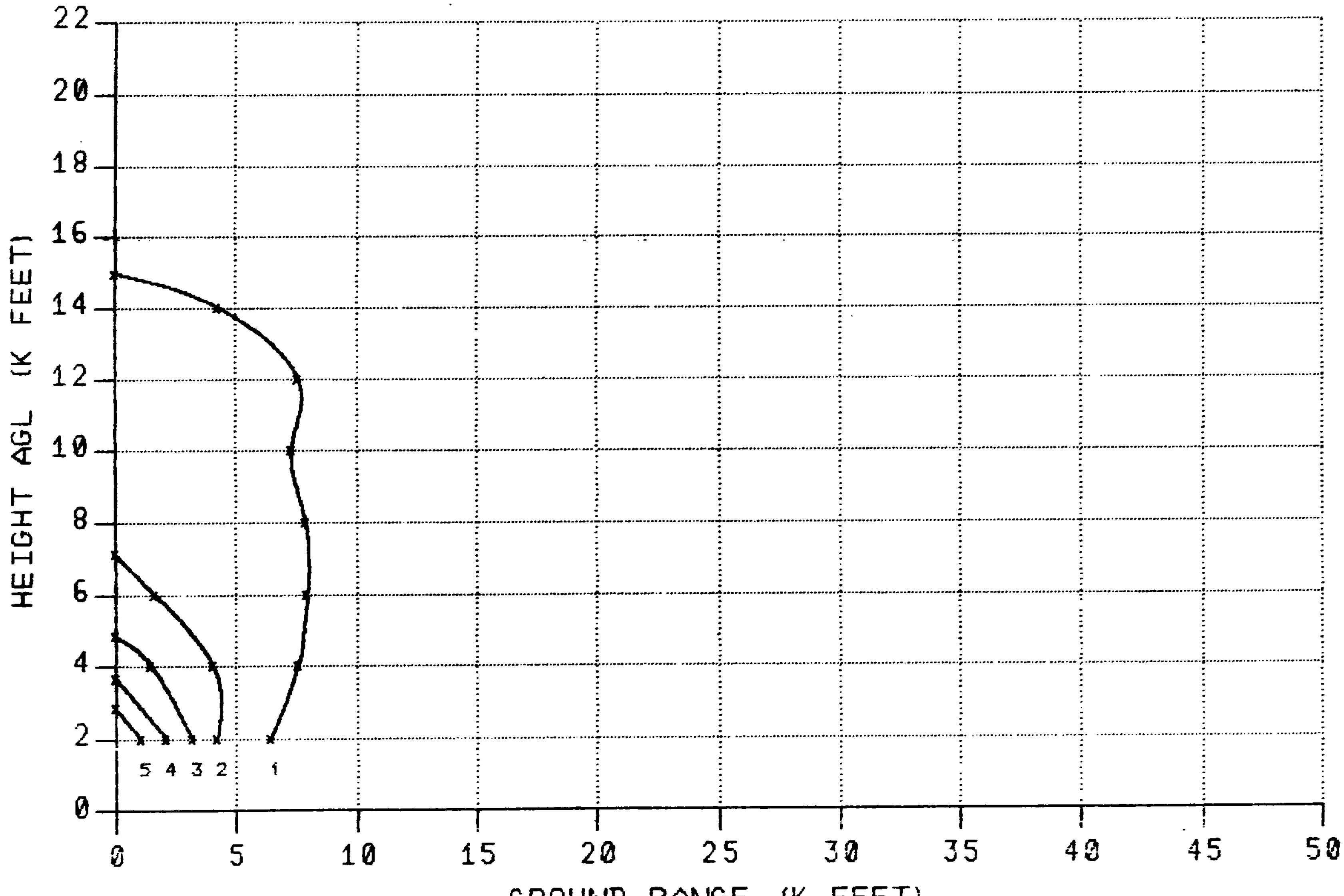
CLOUD COVER: CLR-SCT BKGND. REFLECTANCE: 00 TO 14 PERCENT
SOLAR ELEV. ANGLE : 11 TO 30 DEGREE
SURFACE VISIBILITY: 3 MILES (4.8 KM)
MIXING LYR. DEPTH : 6000 FEET



GROUND RANGE (K FEET)
CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

CLOUD COVER: CLR-SCT

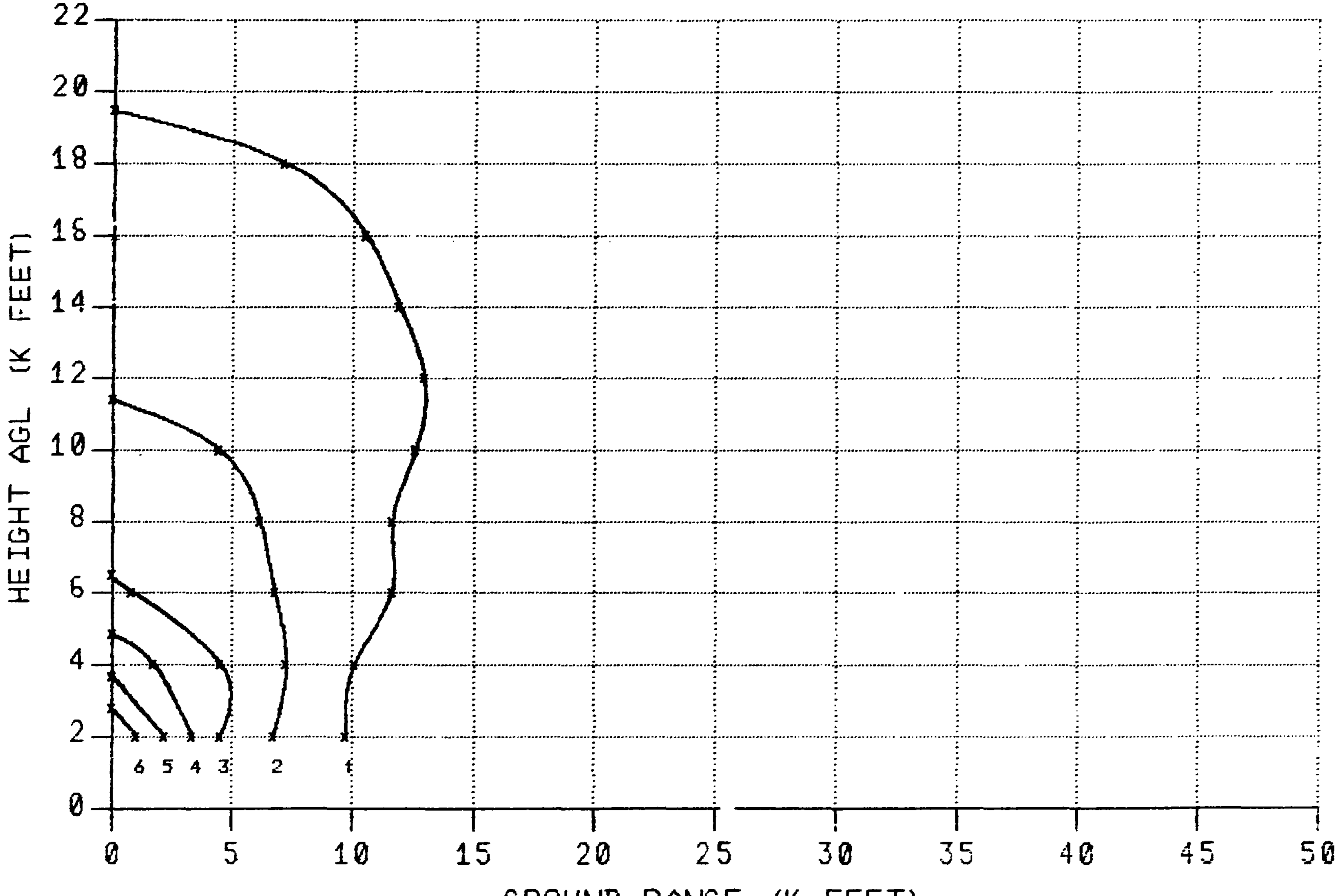
BKGND. REFLECTANCE: 00 TO 14 PERCENT
SOLAR ELEV. ANGLE : 11 TO 30 DEGREE
SURFACE VISIBILITY: 5 MILES (8.0 KM)
MIXING LYR. DEPTH : 6000 FEET



CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

CLOUD COVER: CLR-SCT

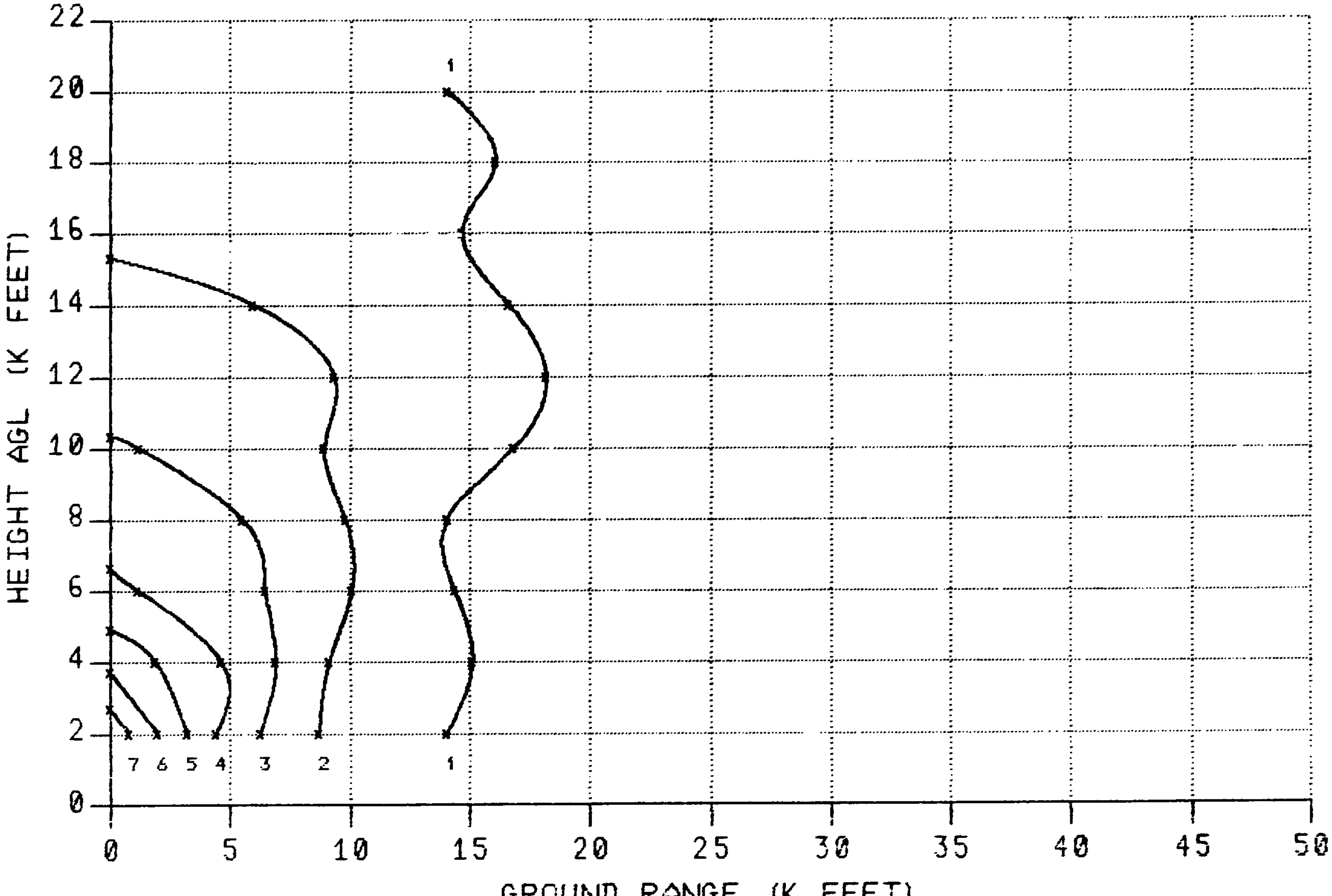
BKGND. REFLECTANCE: 00 TO 14 PERCENT
SOLAR ELEV. ANGLE : 11 TO 30 DEGREE
SURFACE VISIBILITY: 7 MILES (11.3 KM)
MIXING LYR. DEPTH : 6000 FEET



CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

CLOUD COVER: CLR-SCT

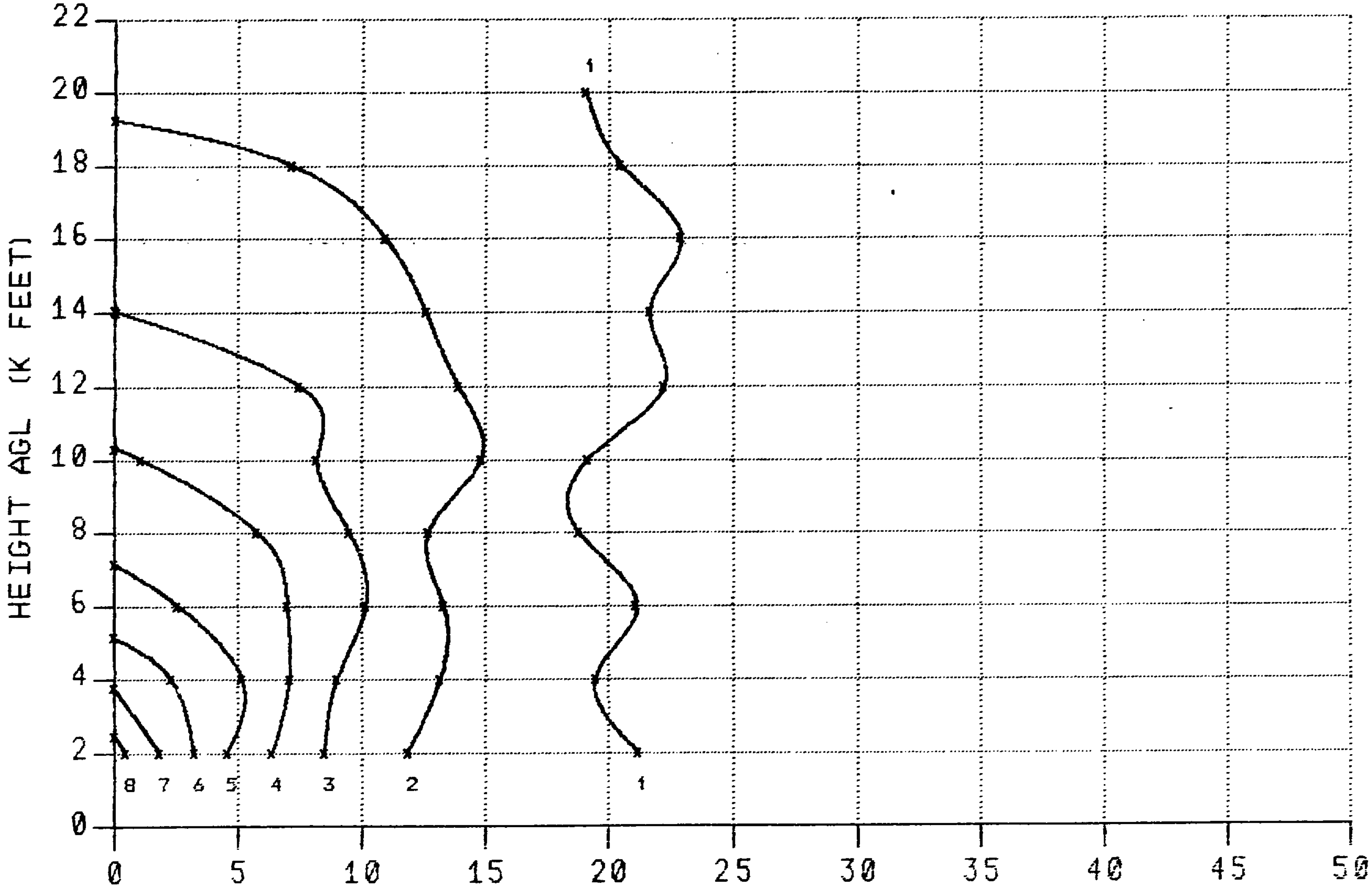
BKGND. REFLECTANCE: 00 TO 14 PERCENT
SOLAR ELEV. ANGLE : 11 TO 30 DEGREE
SURFACE VISIBILITY: 10 MILES (16.1 KM)
MIXING LYR. DEPTH : 6000 FEET



CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

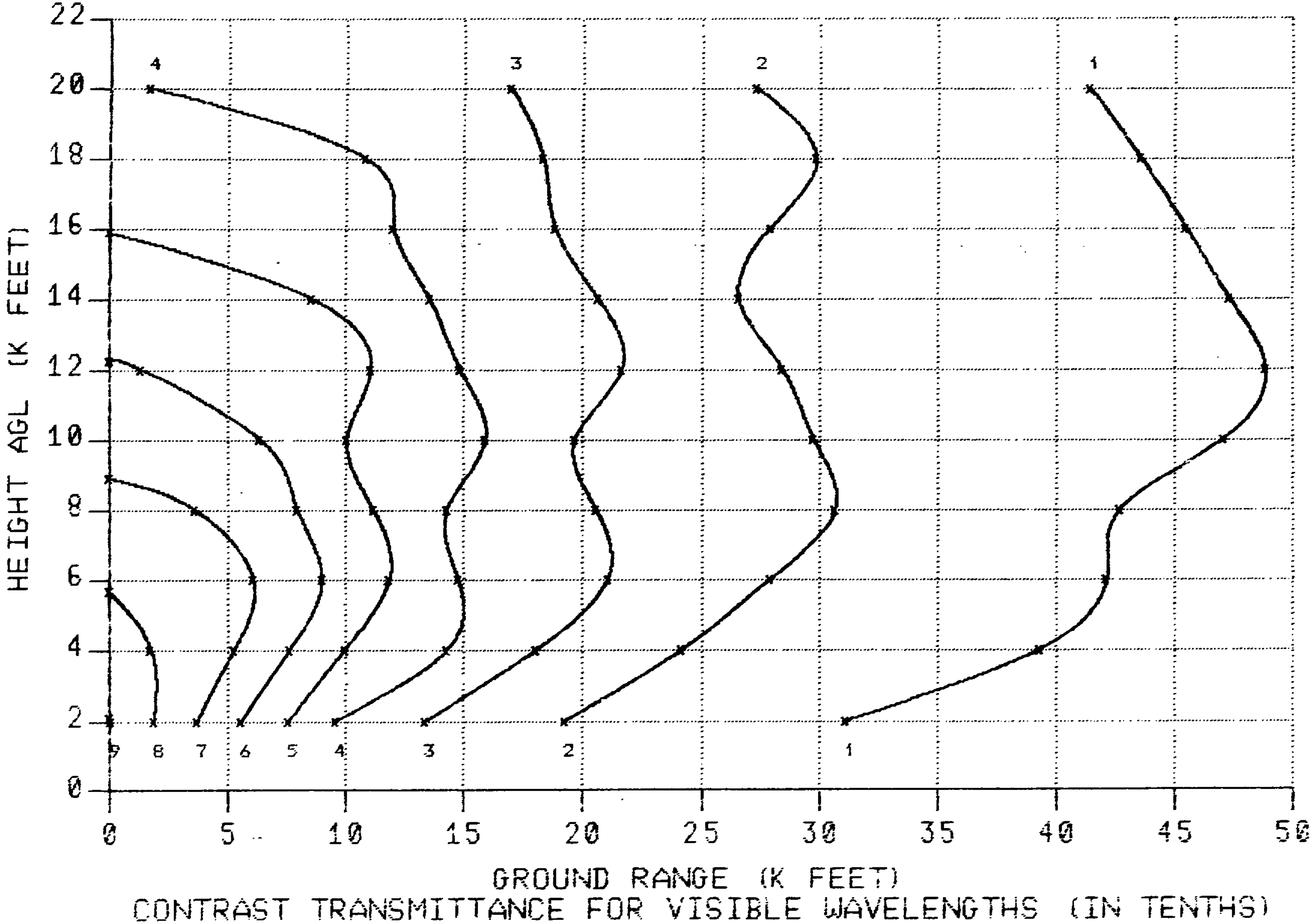
CLOUD COVER: CLR-SCT

BKGND. REFLECTANCE: 00 TO 14 PERCENT
SOLAR ELEV. ANGLE : 11 TO 30 DEGREE
SURFACE VISIBILITY: 15 MILES (24.1 KM)
MIXING LYR. DEPTH : 6000 FEET



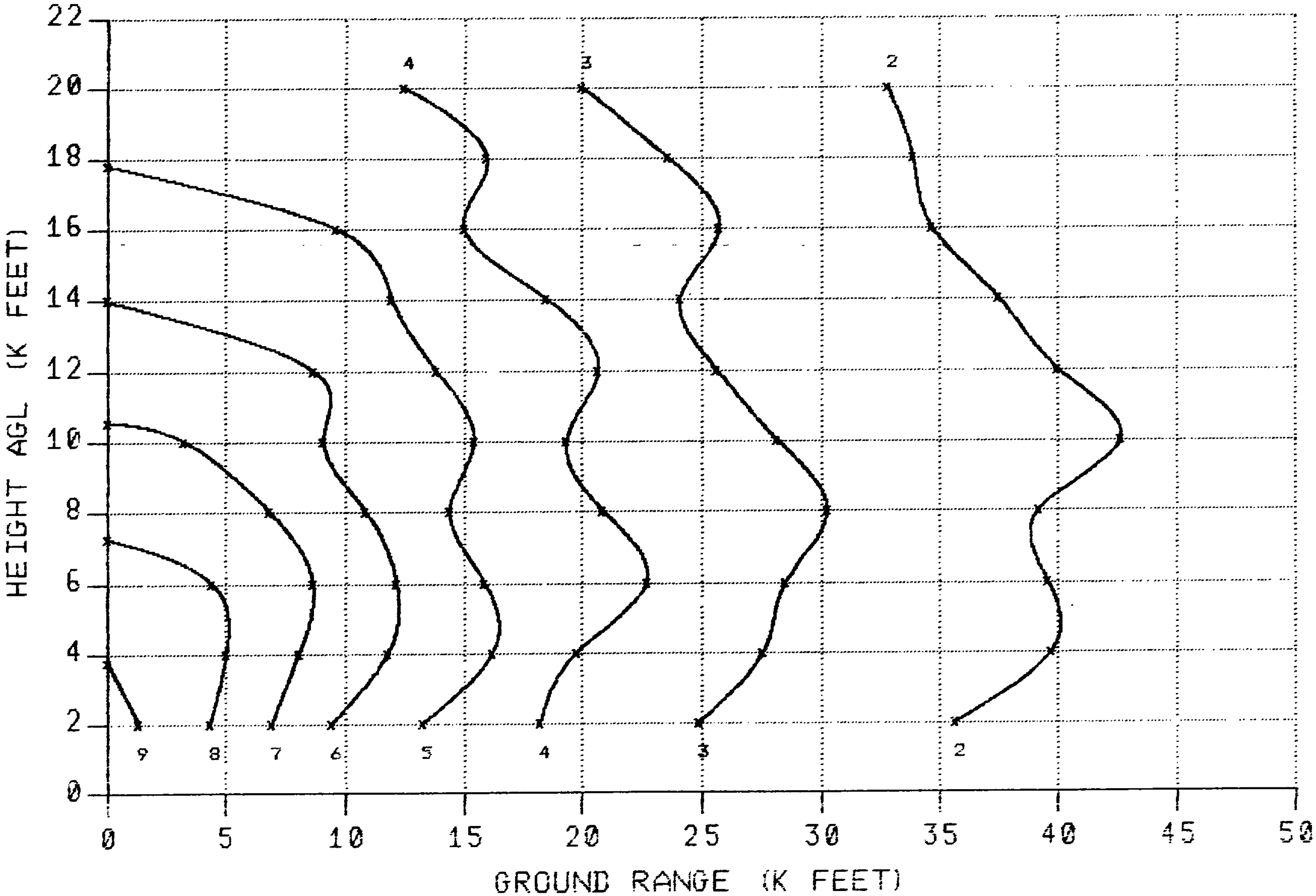
GROUND RANGE (K FEET)
CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

CLOUD COVER: CLR-SCT BKGND. REFLECTANCE: 00 TO 14 PERCENT
SOLAR ELEV. ANGLE : 31 TO 55 DEGREE
SURFACE VISIBILITY: 1 MILE (1.6 KM)
MIXING LYR. DEPTH : BELOW 50 FEET



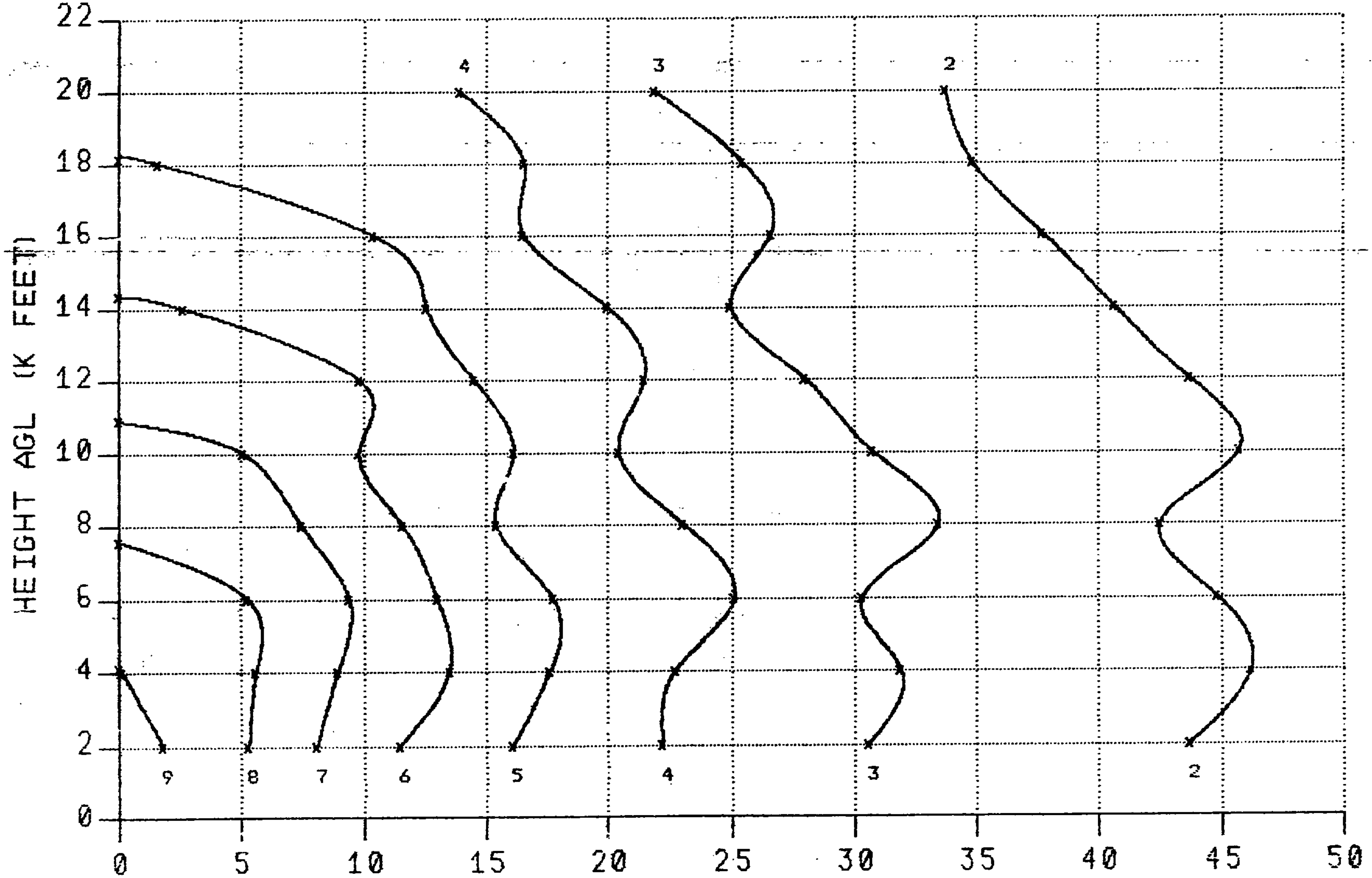
CLOUD COVER: CLR-SCT

BKGND. REFLECTANCE: 00 TO 14 PERCENT
SOLAR ELEV. ANGLE : 31 TO 55 DEGREE
SURFACE VISIBILITY: 3 MILES (4. 8 KM)
MIXING LYR. DEPTH : BELOW 50 FEET



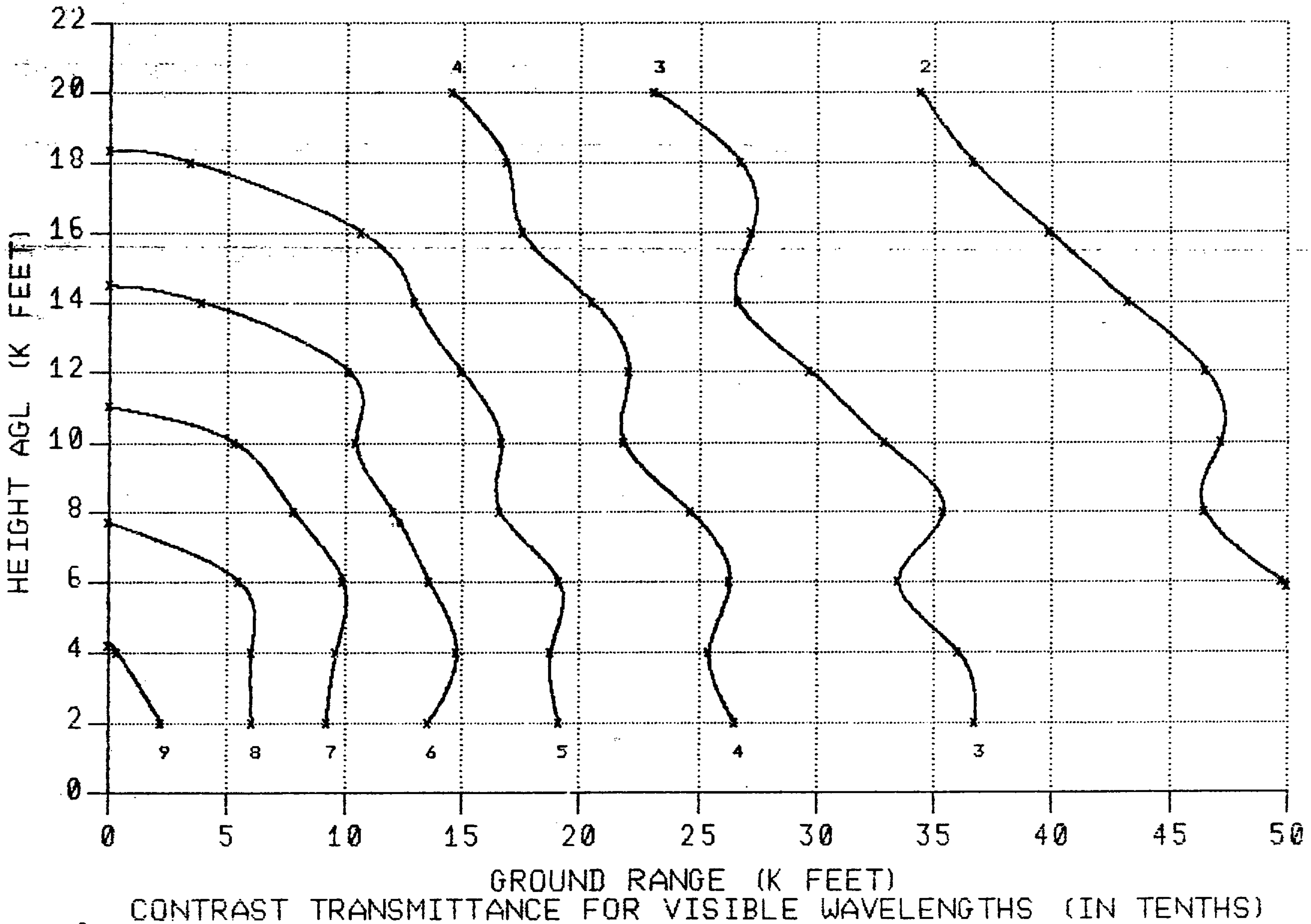
CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

CLOUD COVER: CLR-SCT
BKGND. REFLECTANCE: 00 TO 14 PERCENT
SOLAR ELEV. ANGLE : 31 TO 55 DEGREE
SURFACE VISIBILITY: 5 MILES (8.0 KM)
MIXING LYR. DEPTH : BELOW 50 FEET

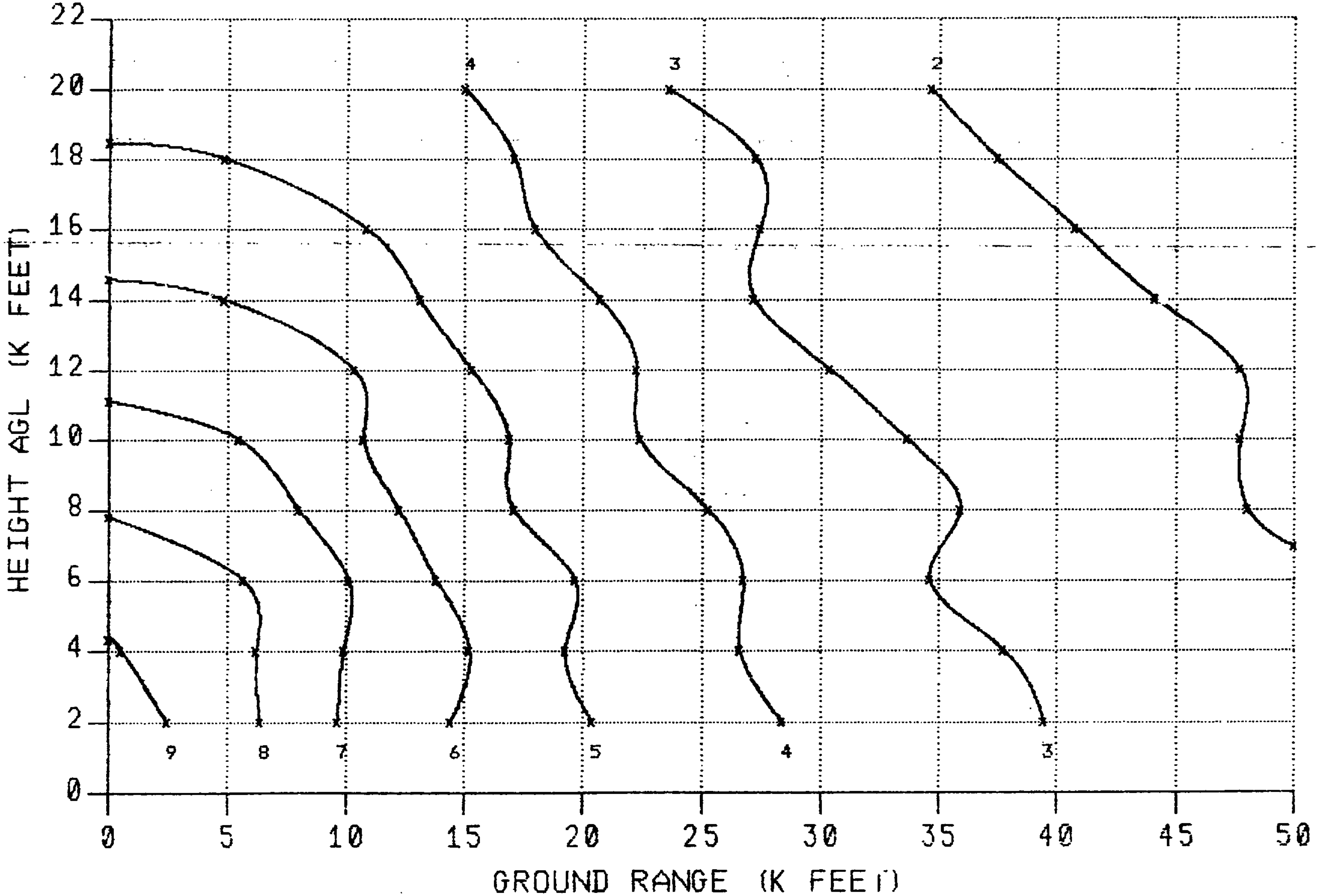


GROUND RANGE (K FEET)
CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

CLOUD COVER: CLR-SCT BKGND. REFLECTANCE: 00 TO 14 PERCENT
SOLAR ELEV. ANGLE : 31 TO 55 DEGREE
SURFACE VISIBILITY: 7 MILES (11.3 KM)
MIXING LYR. DEPTH : BELOW 50 FEET



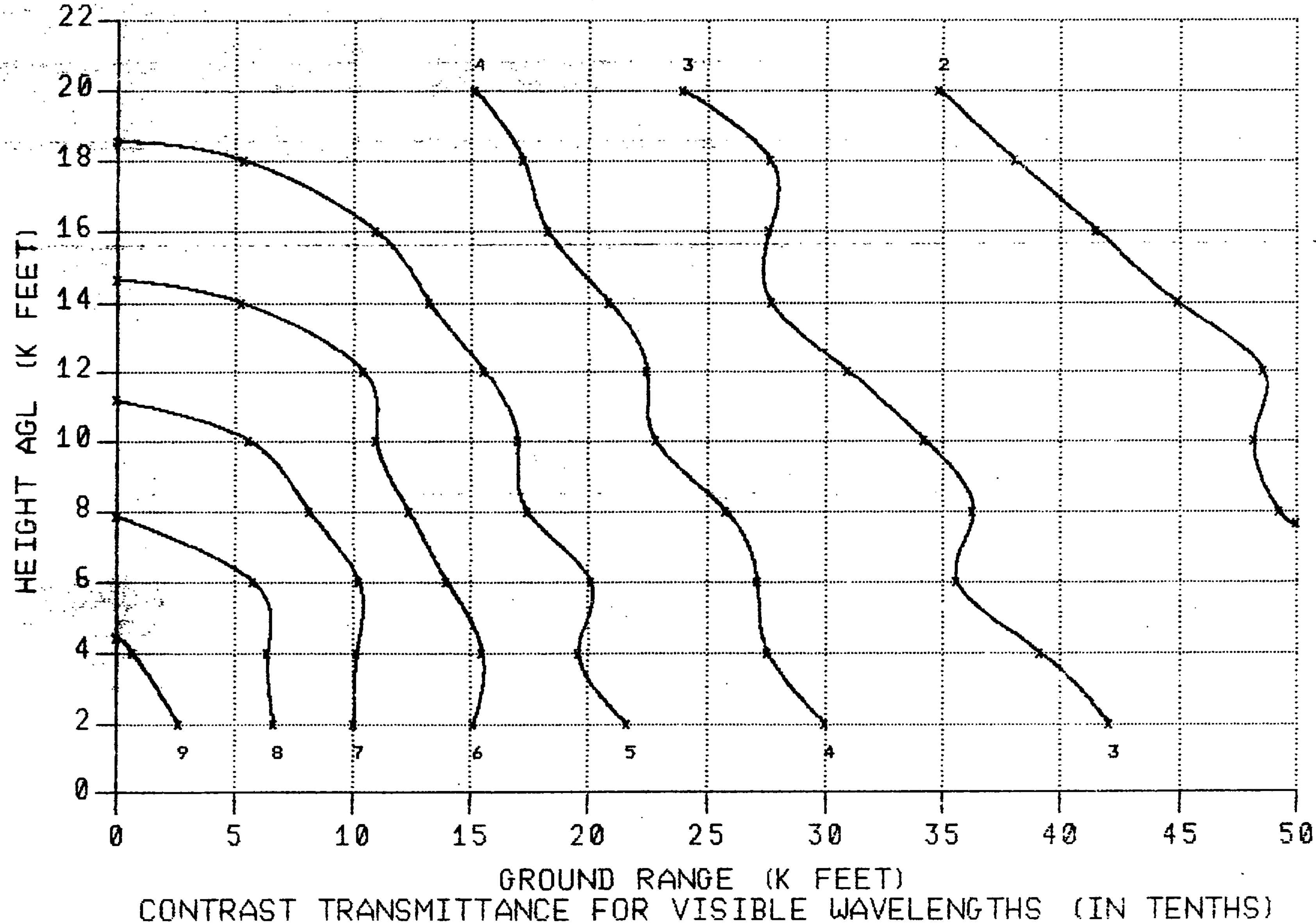
CLOUD COVER: CLR-SCT BKGND. REFLECTANCE: 00 TO 14 PERCENT
SOLAR ELEV. ANGLE : 31 TO 55 DEGREE
SURFACE VISIBILITY: 10 MILES (16.1 KM)
MIXING LYR. DEPTH : BELOW 50 FEET



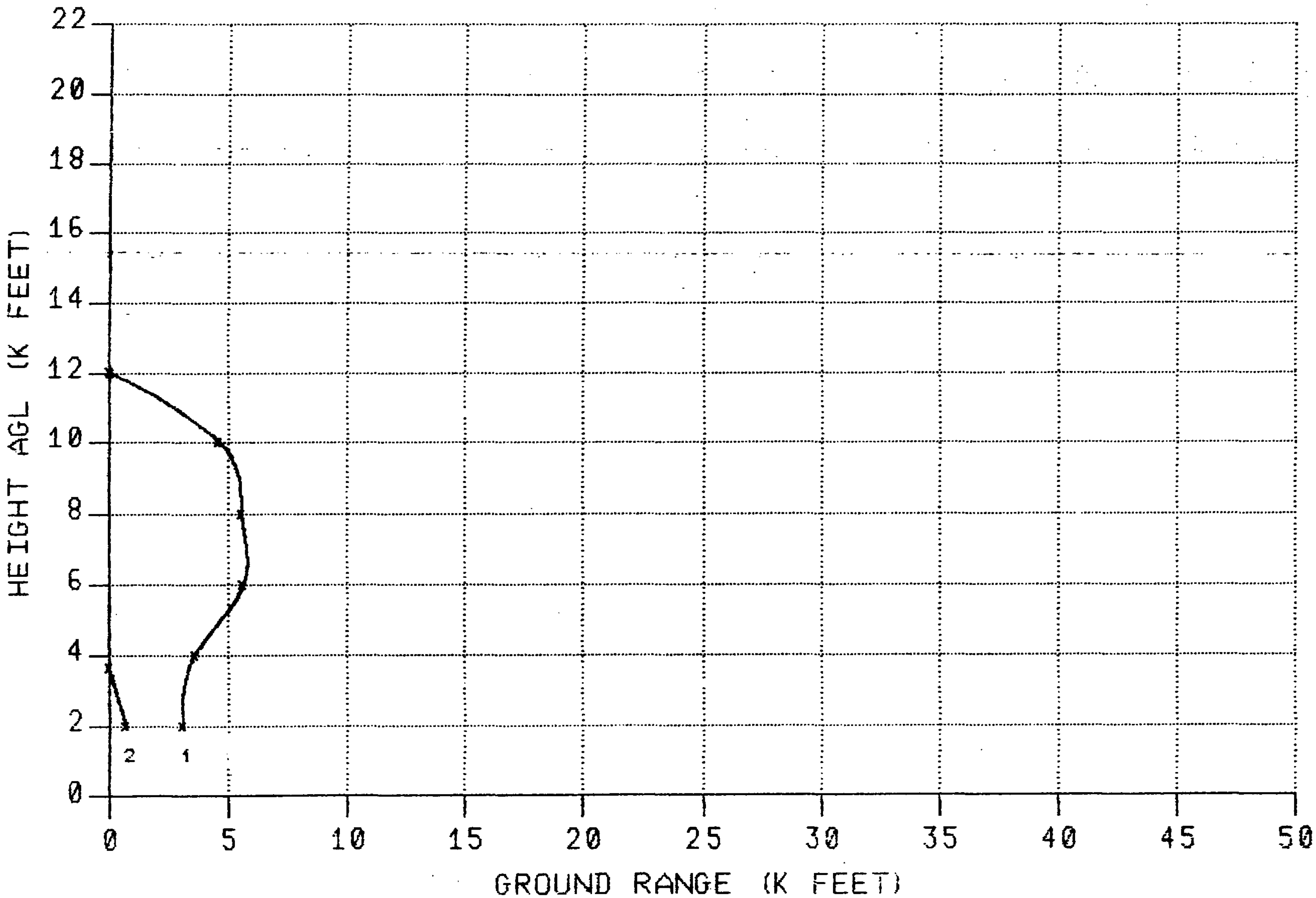
CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

CLOUD COVER: CLR-SCT

BKGND. REFLECTANCE: 00 TO 14 PERCENT
SOLAR ELEV. ANGLE : 31 TO 55 DEGREE
SURFACE VISIBILITY: 15 MILES (24.1 KM)
MIXING LYR. DEPTH : BELOW 50 FEET



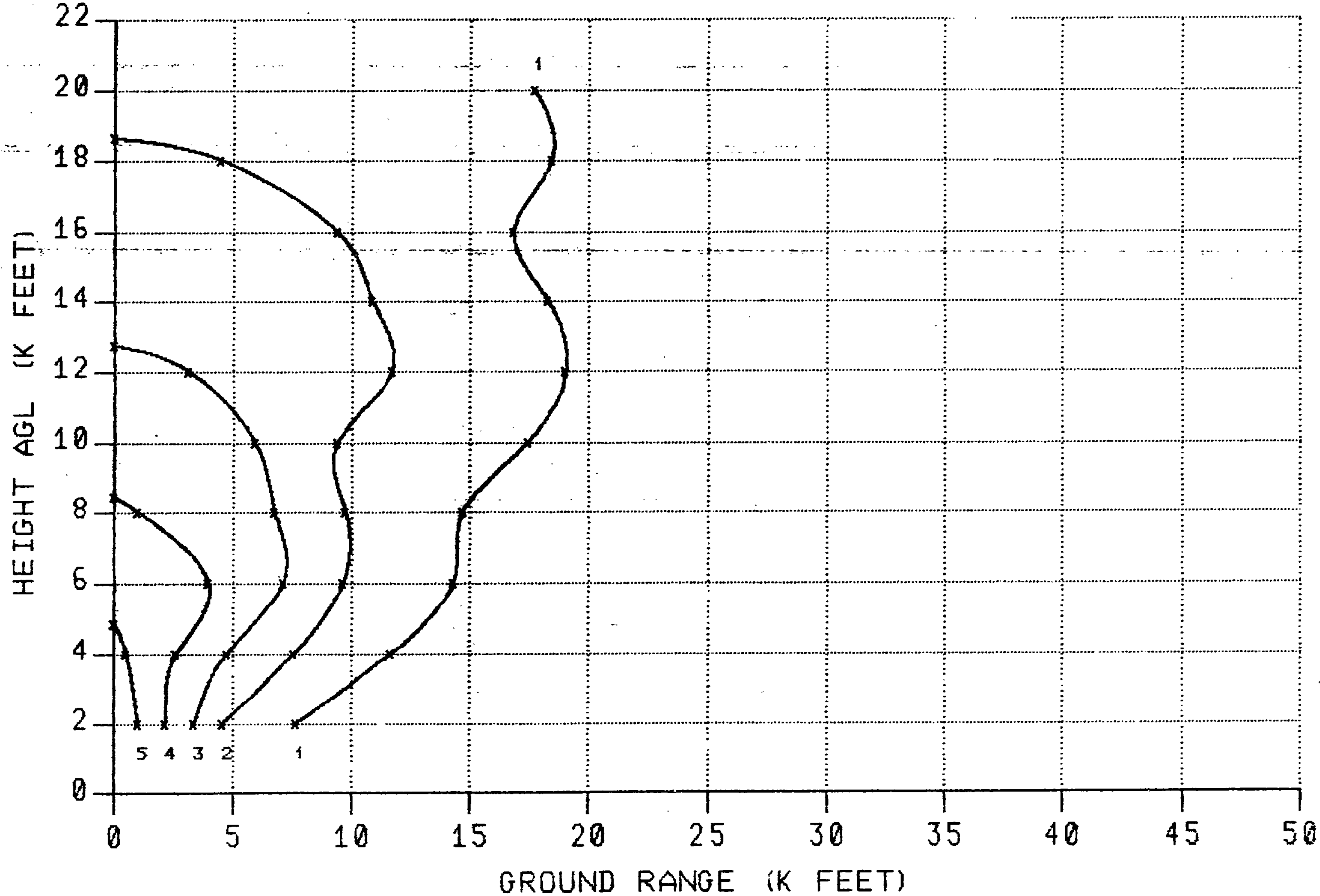
CLOUD COVER: CLR-SCT BKGND. REFLECTANCE: 00 TO 14 PERCENT
SOLAR ELEV. ANGLE : 31 TO 55 DEGREE
SURFACE VISIBILITY: 1 MILE (1.6 KM)
MIXING LYR. DEPTH : 1500 FEET



CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

CLOUD COVER: CLR-SCT

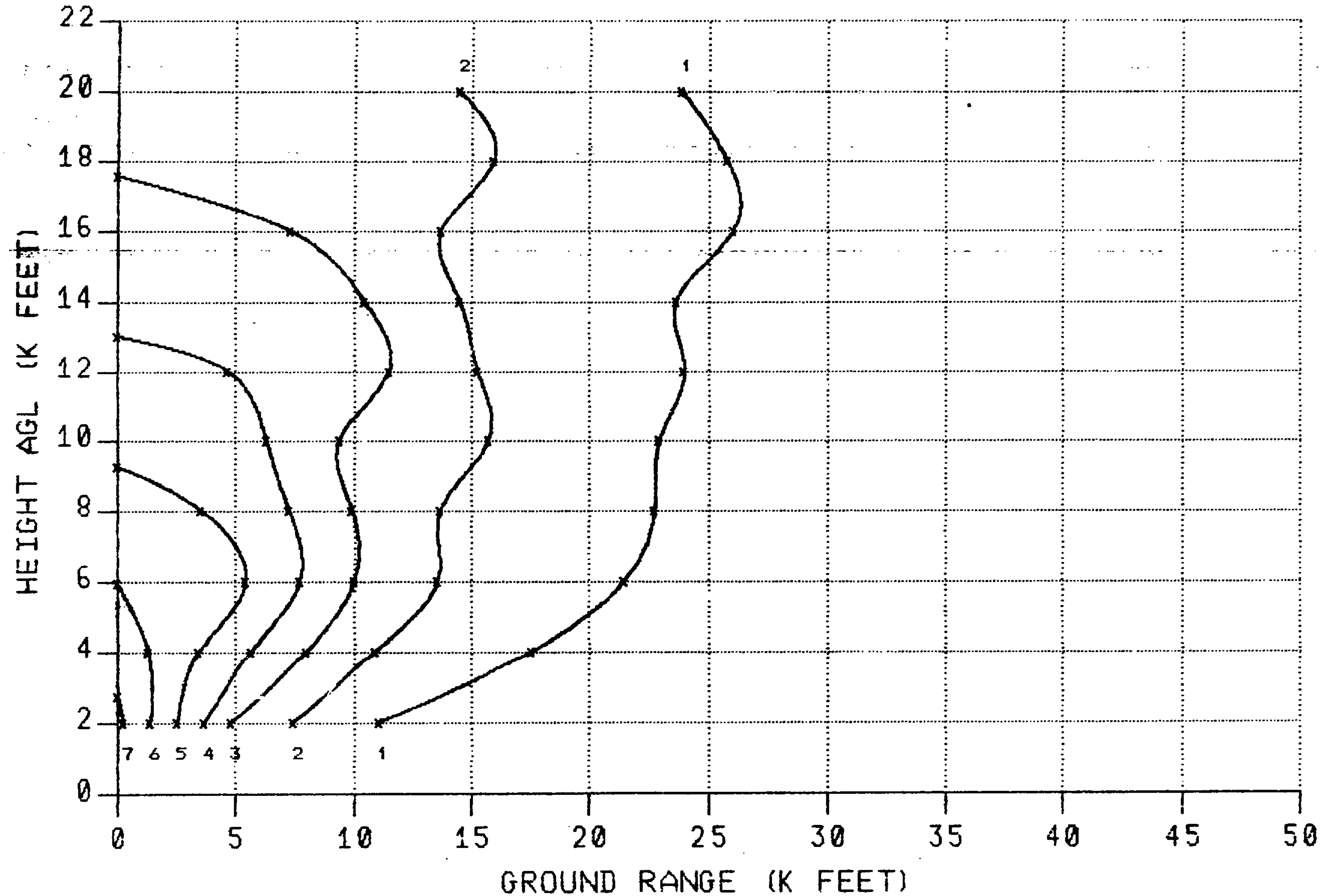
BKGND. REFLECTANCE: 00 TO 14 PERCENT
SOLAR ELEV. ANGLE : 31 TO 55 DEGREE
SURFACE VISIBILITY: 3 MILES (4.8 KM)
MIXING LYR. DEPTH : 1500 FEET



CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

CLOUD COVER: CLR-SCT

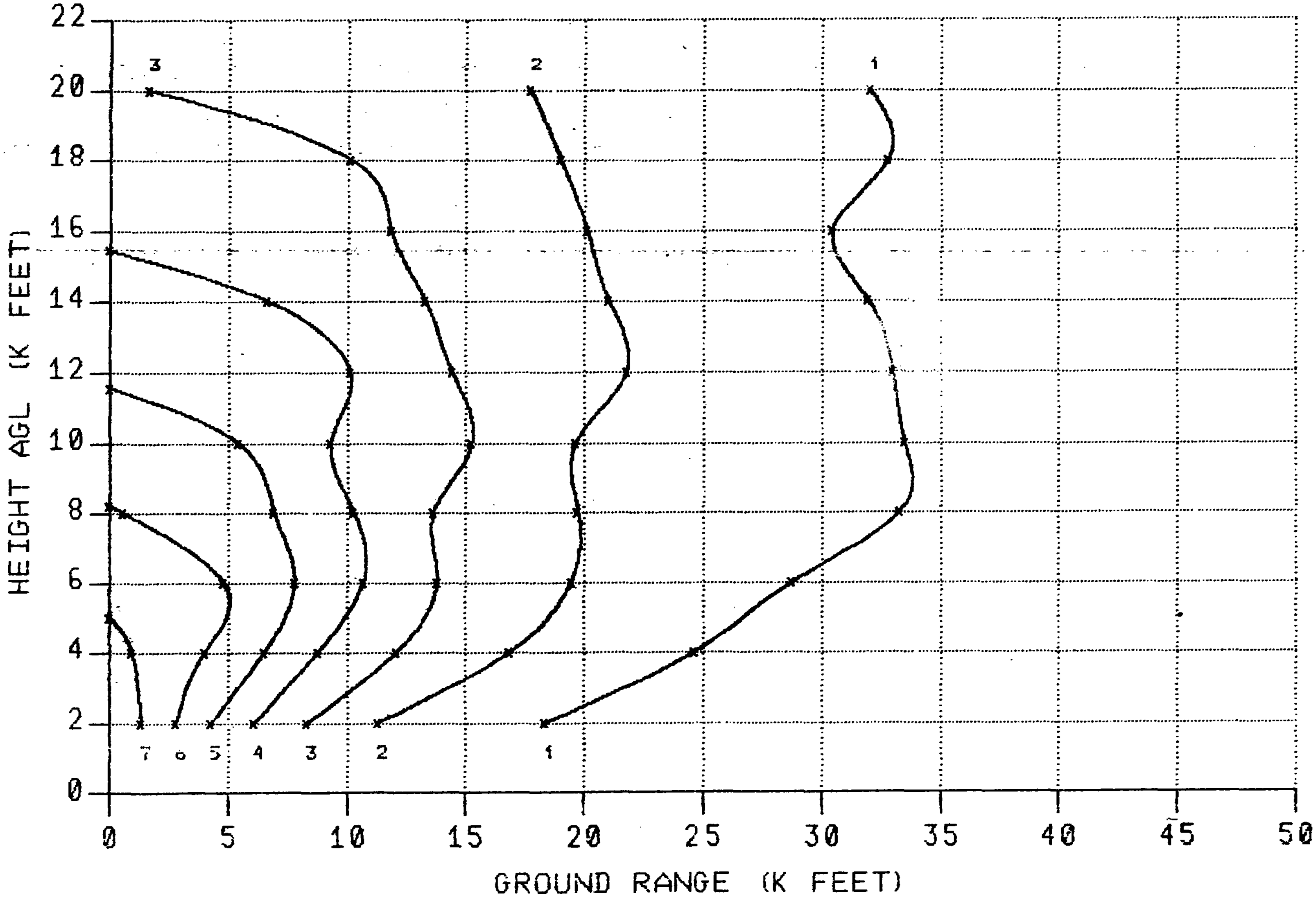
BKGND. REFLECTANCE: 00 TO 14 PERCENT
SOLAR ELEV. ANGLE : 31 TO 55 DEGREE
SURFACE VISIBILITY: 5 MILES (8.0 KM)
MIXING LYR. DEPTH : 1500 FEET



CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

CLOUD COVER: CLR-SCT

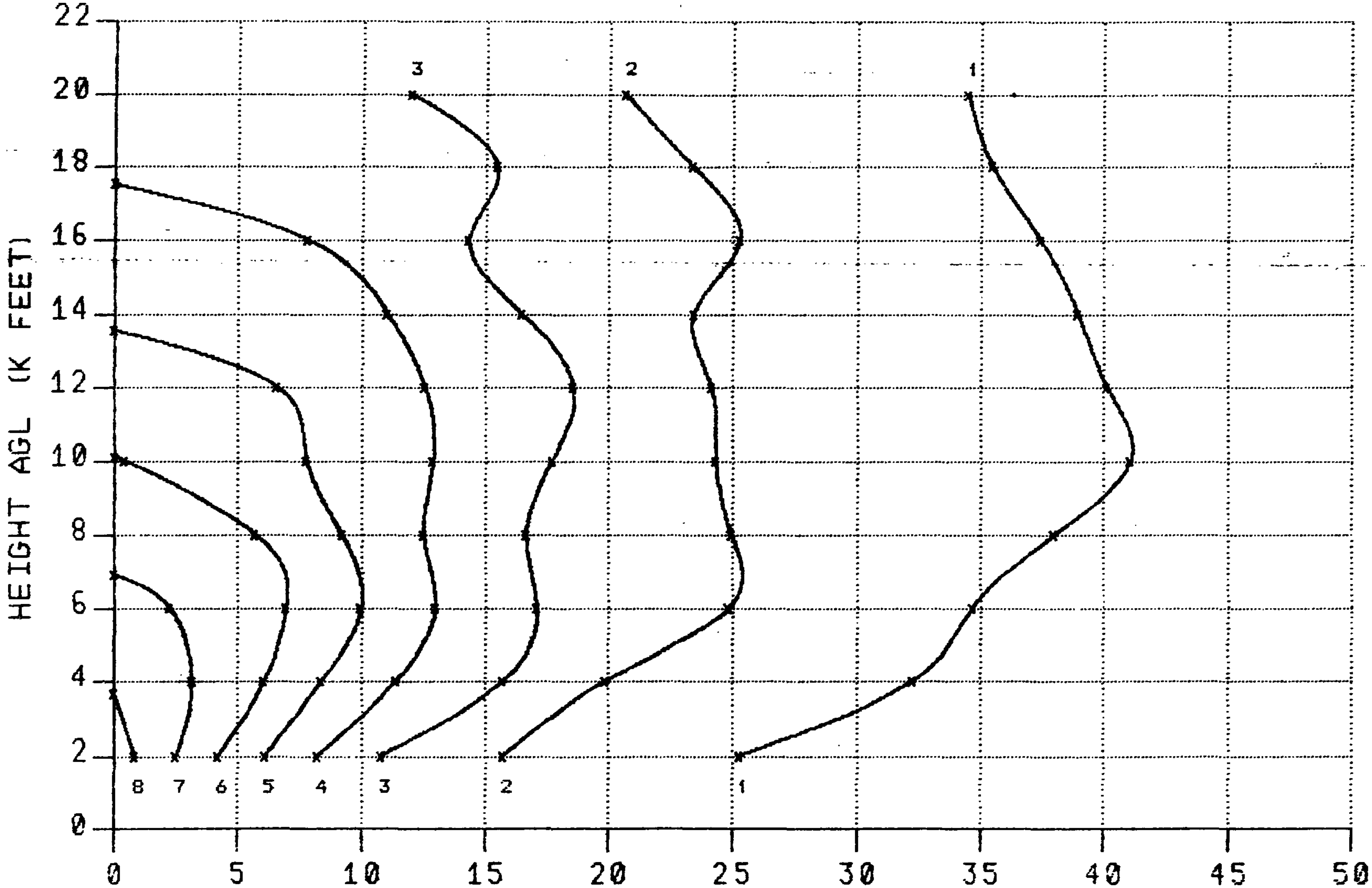
BKGND. REFLECTANCE: 00 TO 14 PERCENT
SOLAR ELEV. ANGLE : 31 TO 55 DEGREE
SURFACE VISIBILITY: 7 MILES (11.3 KM)
MIXING LYR. DEPTH : 1500 FEET



CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

CLOUD COVER: CLR-SCT

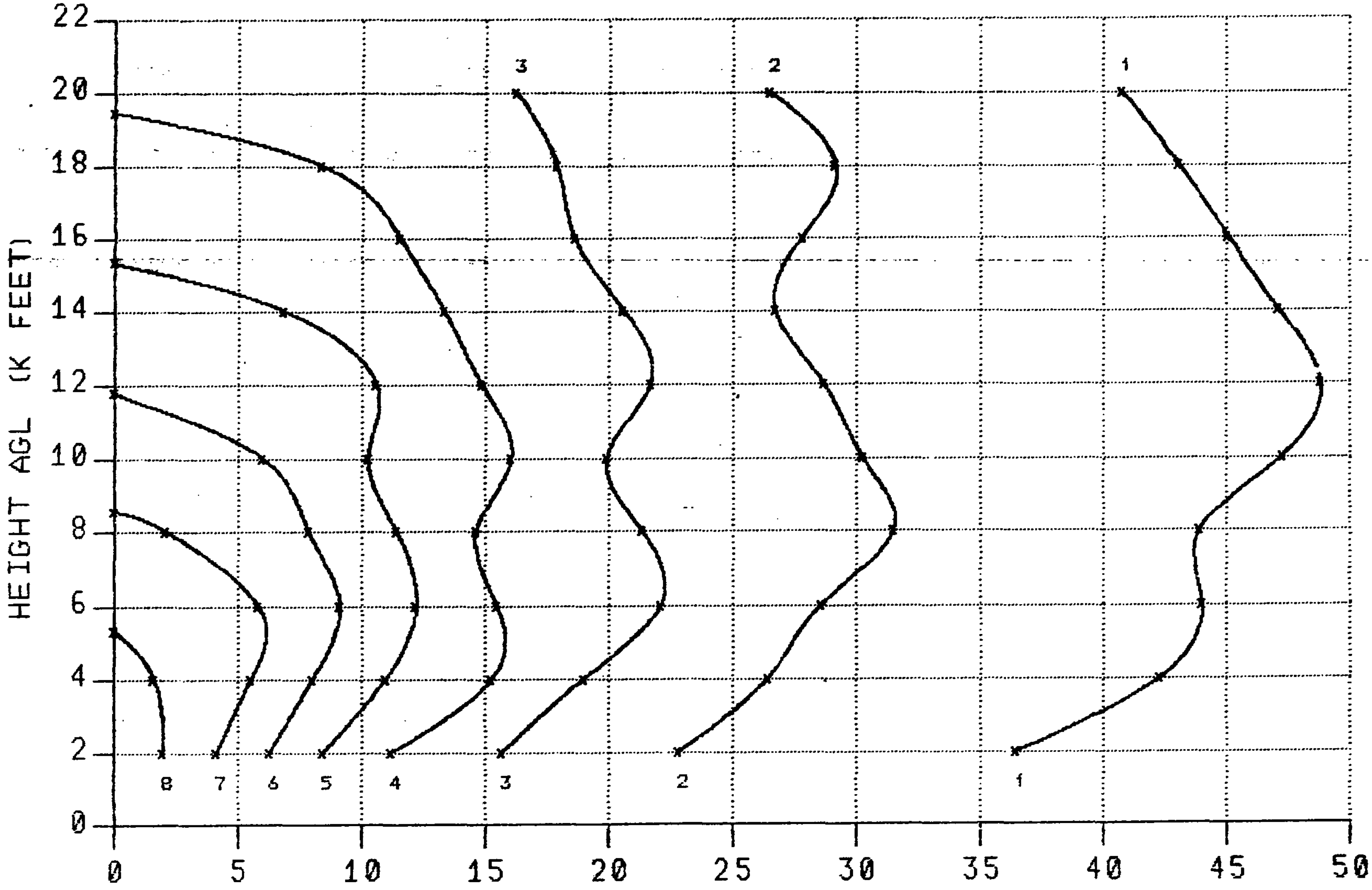
BKGND. REFLECTANCE: 00 TO 14 PERCENT
SOLAR ELEV. ANGLE : 31 TO 55 DEGREE
SURFACE VISIBILITY: 10 MILES (16.1 KM)
MIXING LYR. DEPTH : 1500 FEET



GROUND RANGE (K FEET)
CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

CLOUD COVER: CLR-SCT

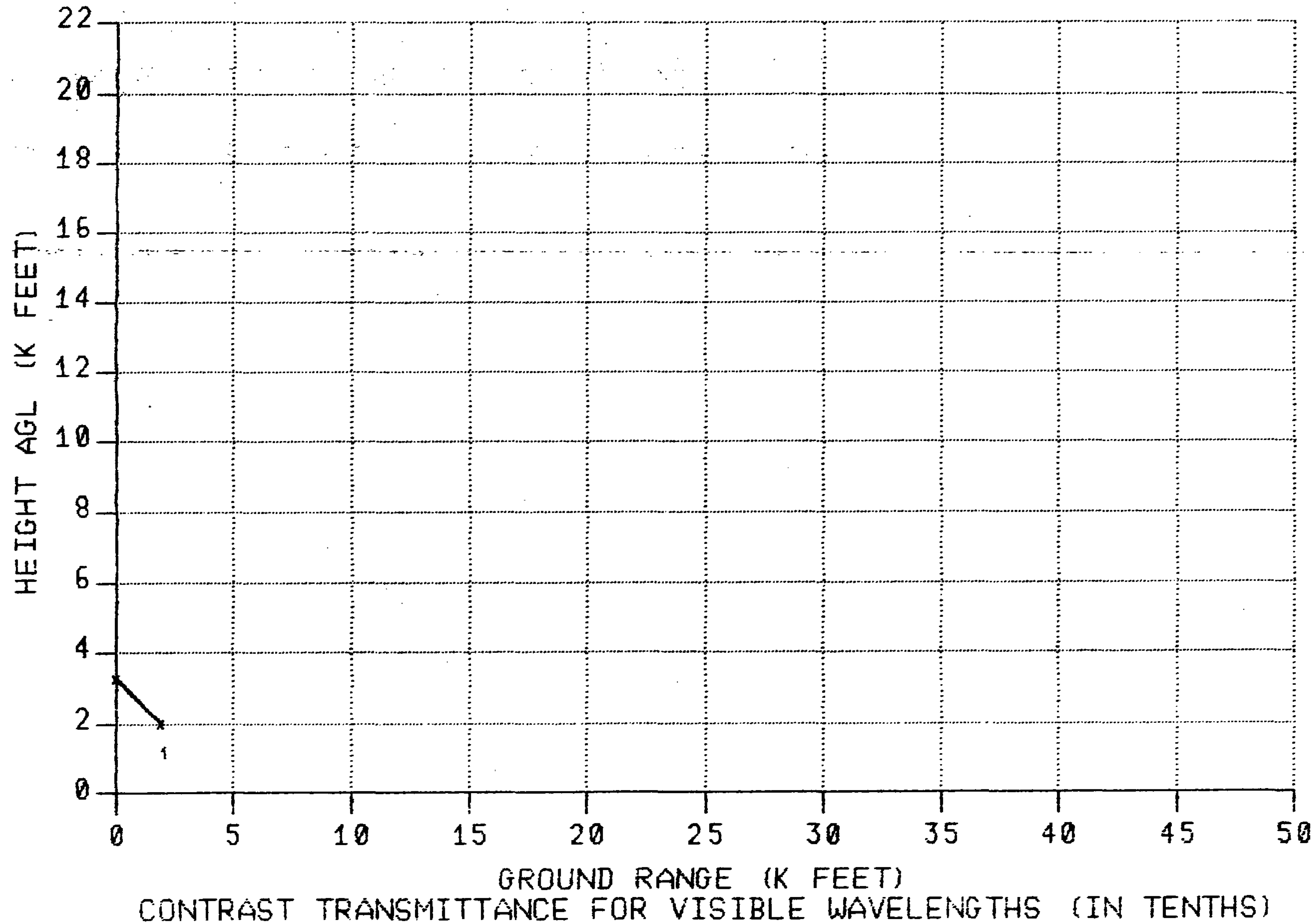
BKGND. REFLECTANCE: 00 TO 14 PERCENT
SOLAR ELEV. ANGLE : 31 TO 55 DEGREE
SURFACE VISIBILITY: 15 MILES (24.1 KM)
MIXING LYR. DEPTH : 1500 FEET



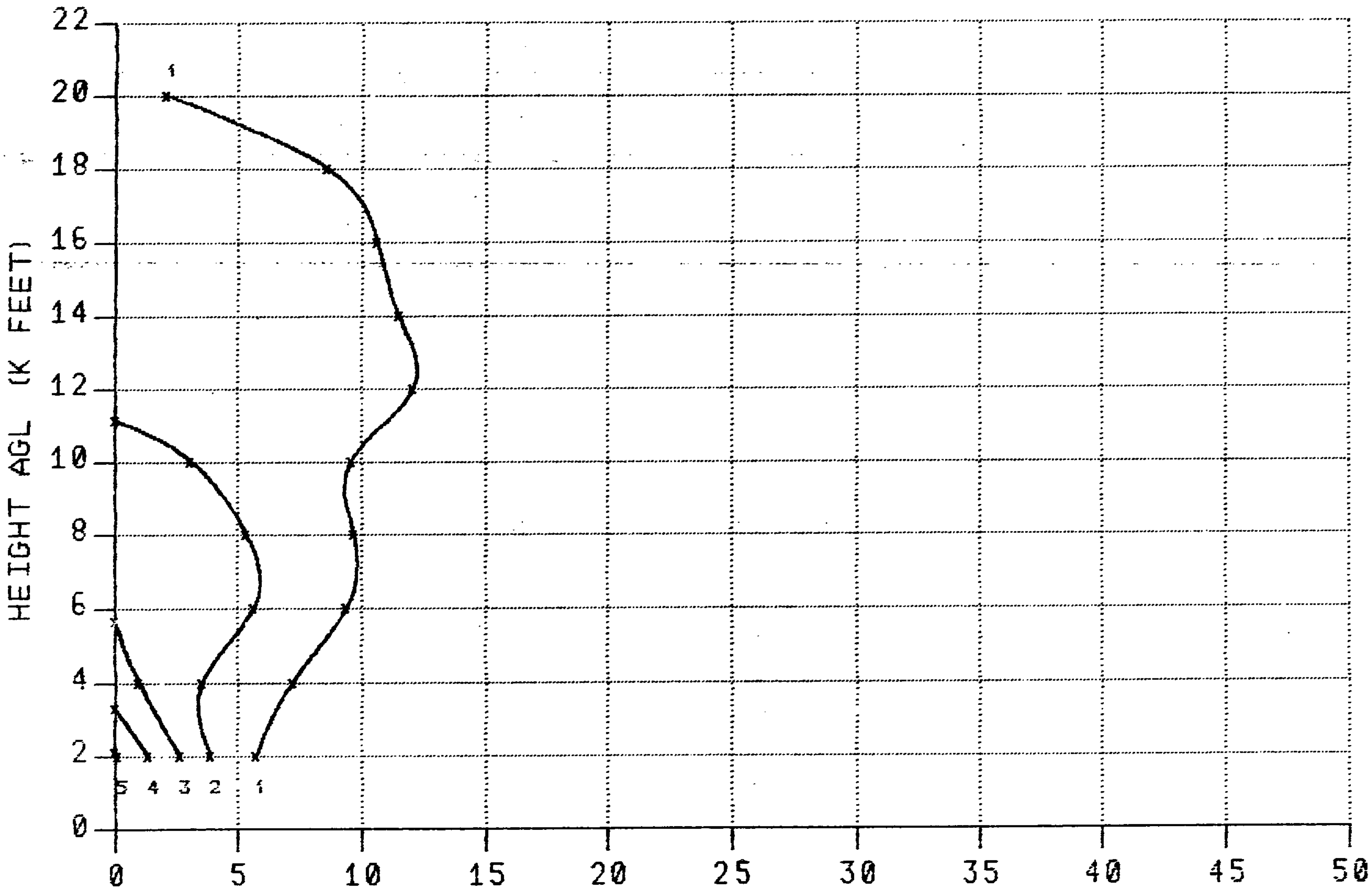
GROUND RANGE (K FEET)
CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

CLOUD COVER: CLR-SCT

BKGND. REFLECTANCE: 00 TO 14 PERCENT
SOLAR ELEV. ANGLE : 31 TO 55 DEGREE
SURFACE VISIBILITY: 1 MILE (1.6 KM)
MIXING LYR. DEPTH : 3000 FEET



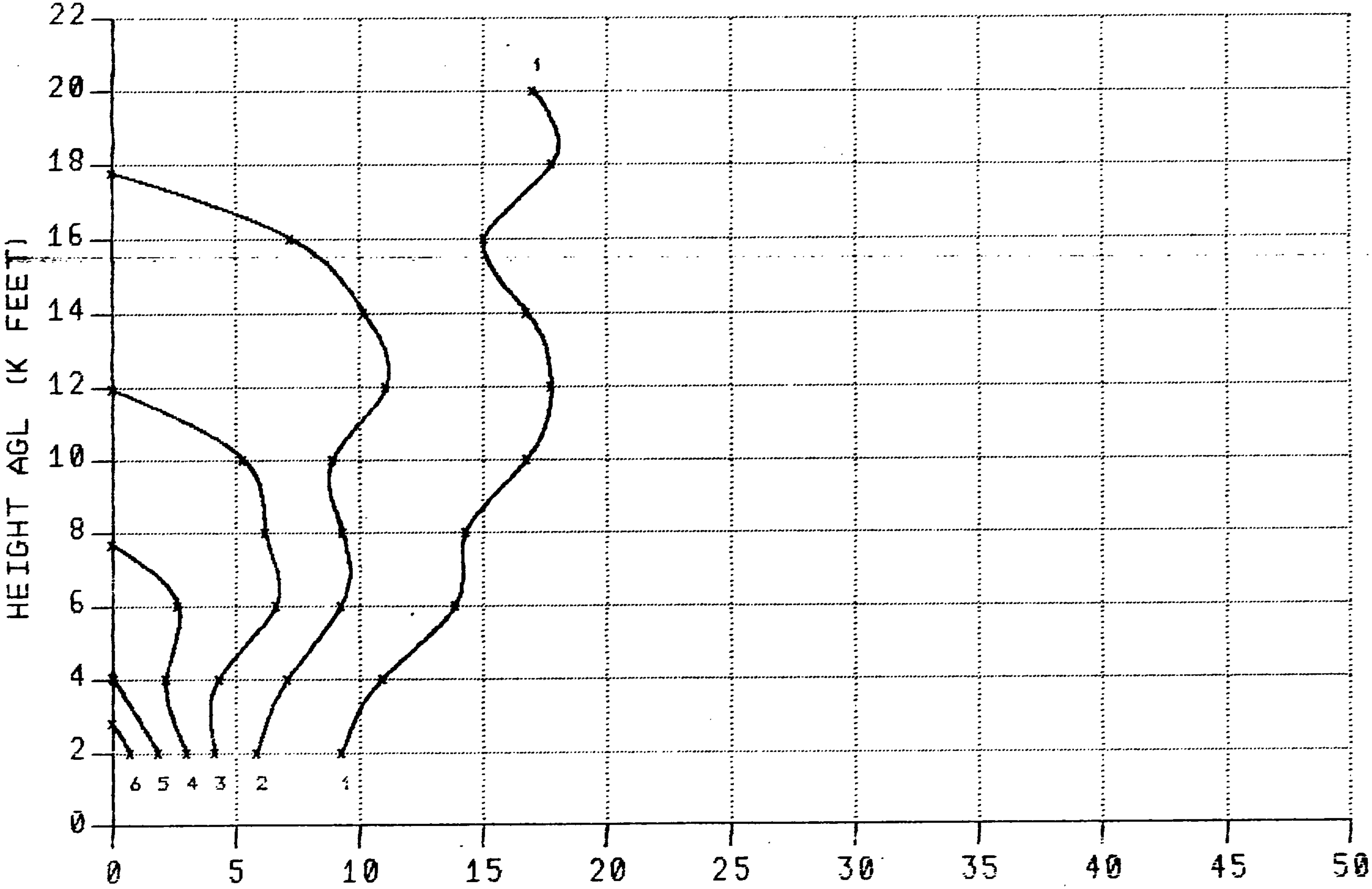
CLOUD COVER: CLR-SCT BKGND. REFLECTANCE: 00 TO 14 PERCENT
SOLAR ELEV. ANGLE : 31 TO 55 DEGREE
SURFACE VISIBILITY: 3 MILES (4.8 KM)
MIXING LYR. DEPTH : 3000 FEET



CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

CLOUD COVER: CLR-SCT

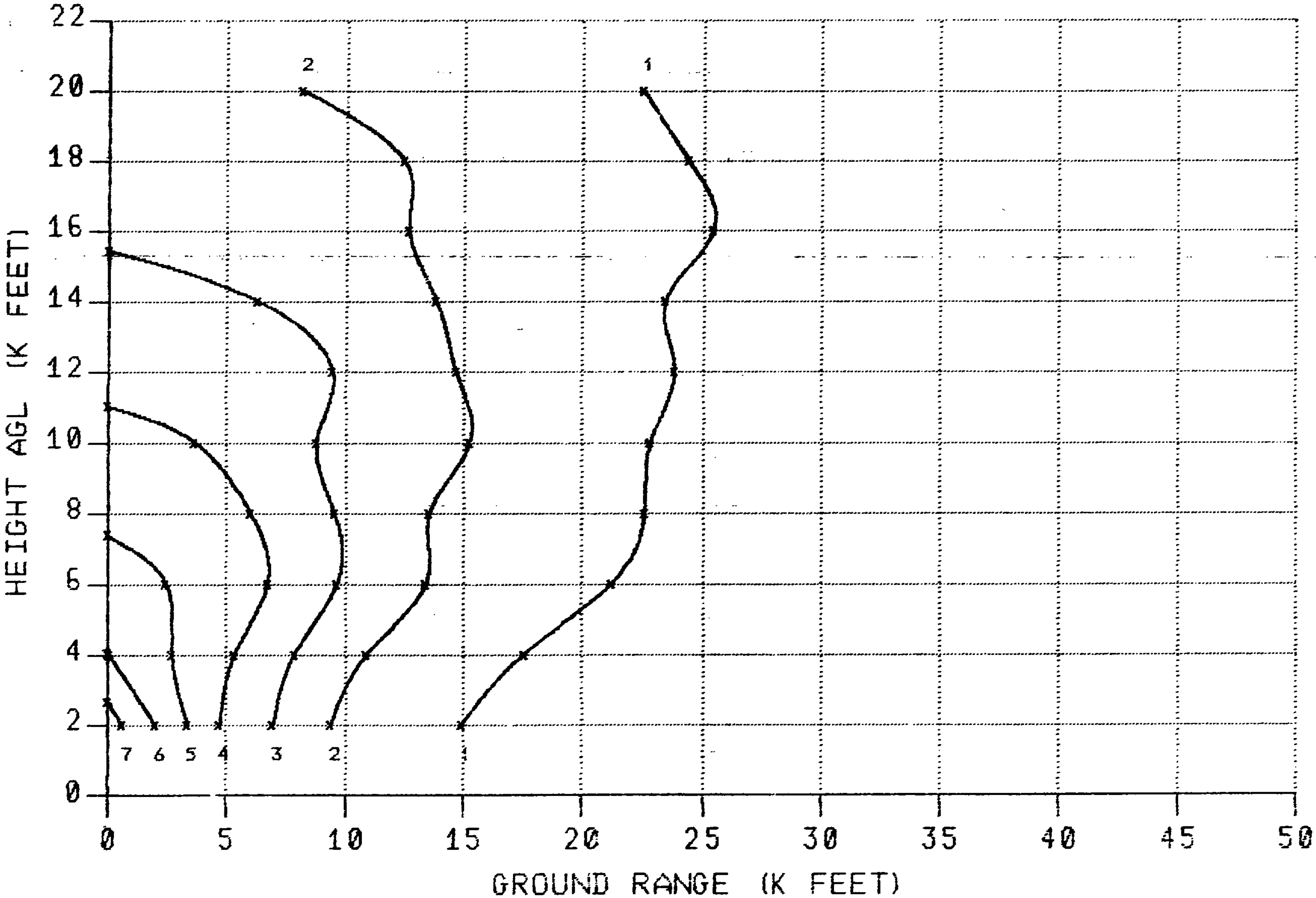
BKGND. REFLECTANCE: 00 TO 14 PERCENT
SOLAR ELEV. ANGLE : 31 TO 55 DEGREE
SURFACE VISIBILITY: 5 MILES (8.0 KM)
MIXING LYR. DEPTH : 3000 FEET



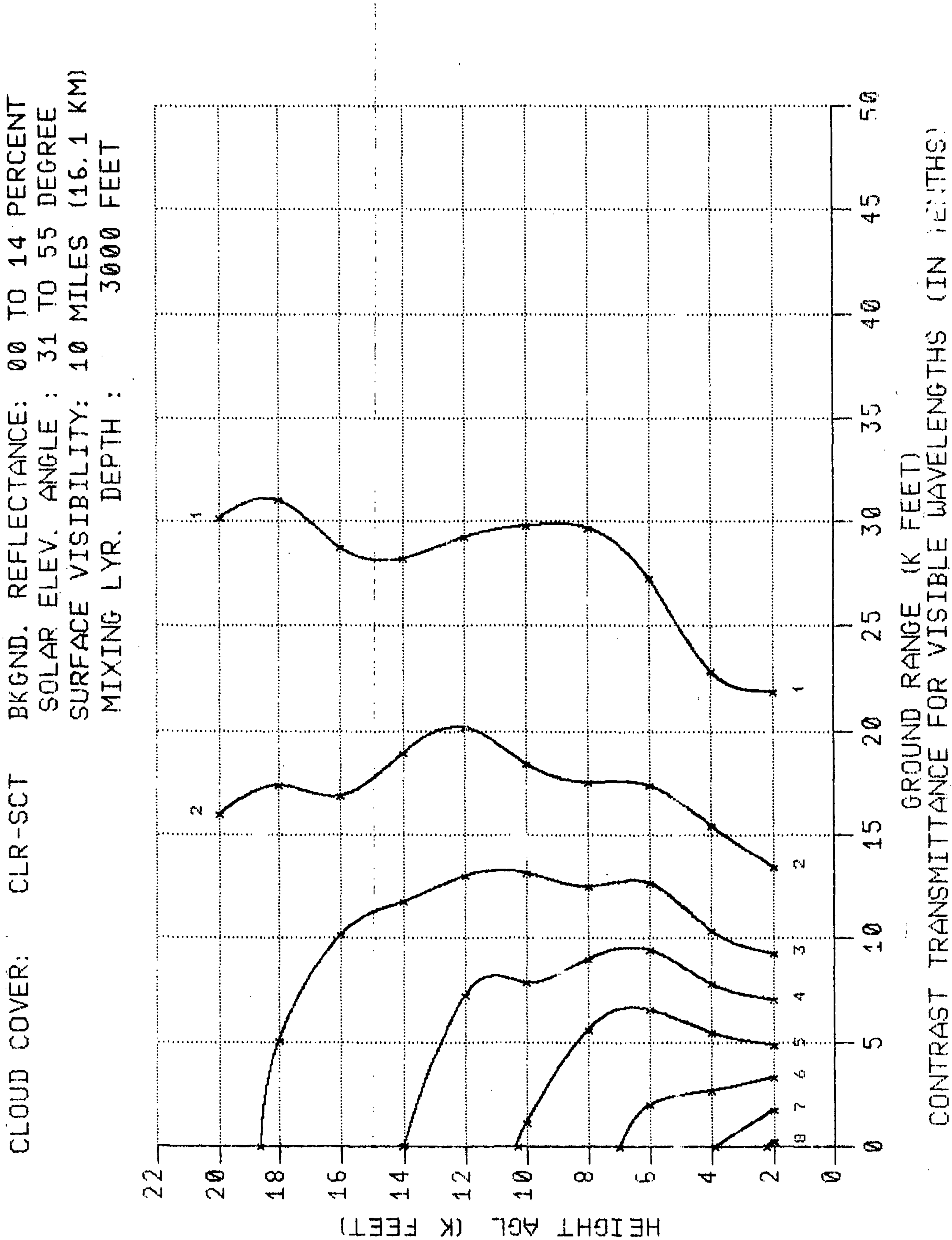
CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

CLOUD COVER: CLR-SCT

BKGND. REFLECTANCE: 00 TO 14 PERCENT
SOLAR ELEV. ANGLE : 31 TO 55 DEGREE
SURFACE VISIBILITY: 7 MILES (11.3 KM)
MIXING LYR. DEPTH : 3000 FEET

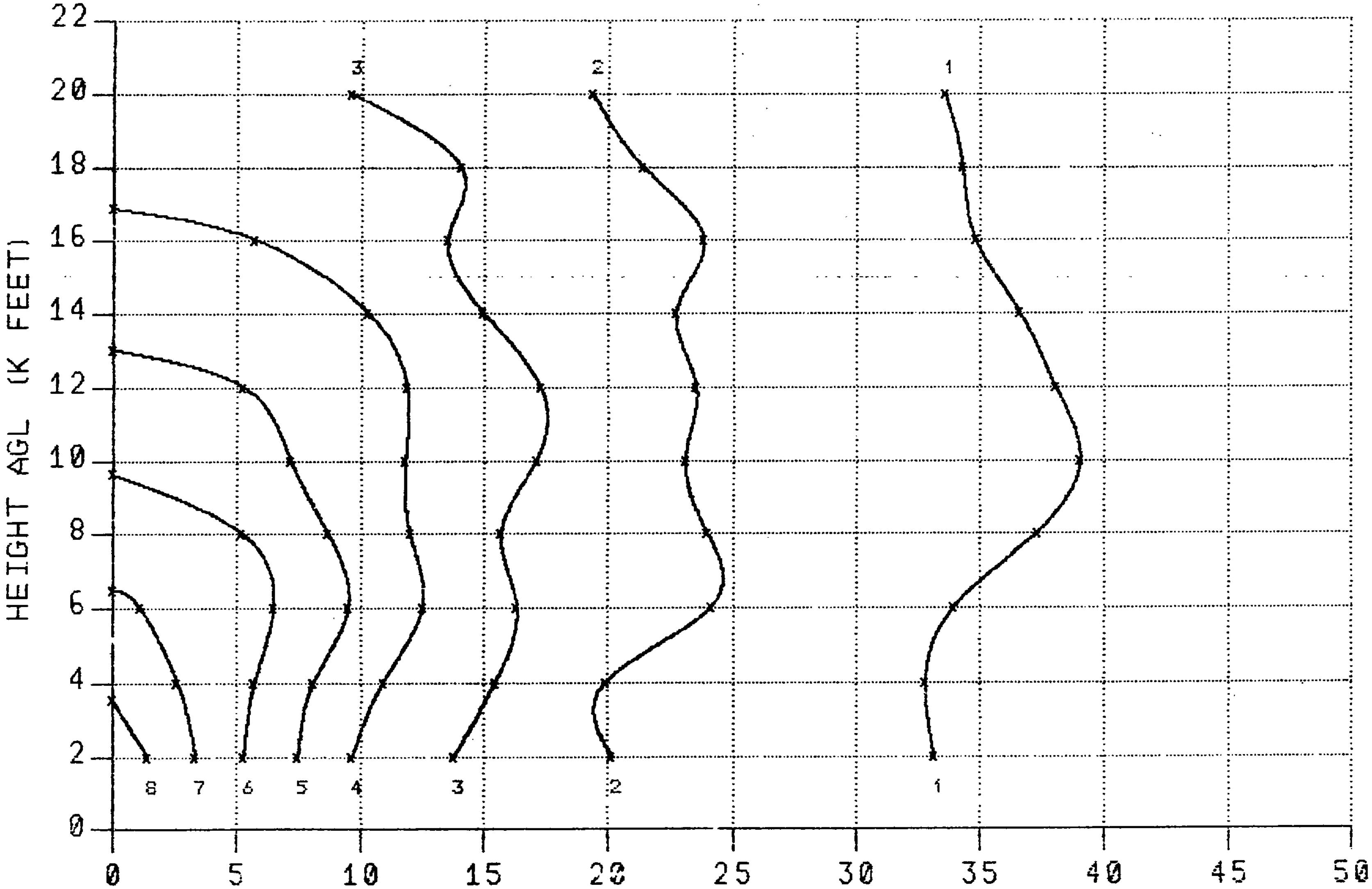


CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)



CLOUD COVER: CLR-SCT
BKGND. REFLECTANCE: 00 TO 14 PERCENT
SOLAR ELEV. ANGLE : 31 TO 55 DEGREE
SURFACE VISIBILITY: 10 MILES (16.1 KM)
MIXING LYR. DEPTH : 3000 FEET
HEIGHT AGL (K FEET)
0 2 4 6 8 10 12 14 16 18 20 22
GROUND RANGE (K FEET)
0 5 10 15 20 25 30 35 40 45 50
CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

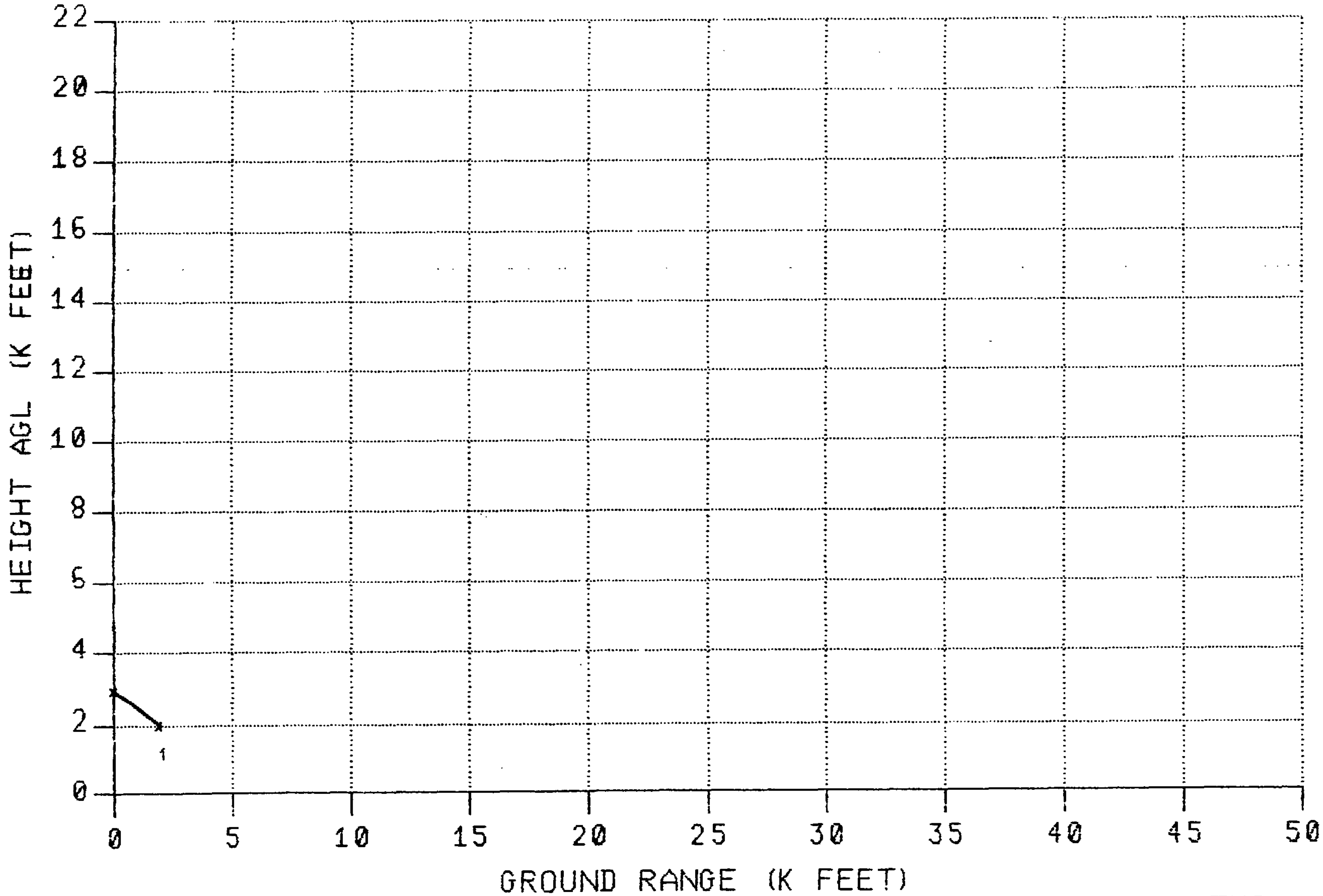
CLOUD COVER: CLR-SCT BKGND. REFLECTANCE: 00 TO 14 PERCENT
SOLAR ELEV. ANGLE : 31 TO 55 DEGREE
SURFACE VISIBILITY: 15 MILES (24.1 KM)
MIXING LYR. DEPTH : 3000 FEET



GROUND RANGE (K FEET)
CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

CLOUD COVER: CLR-SCT

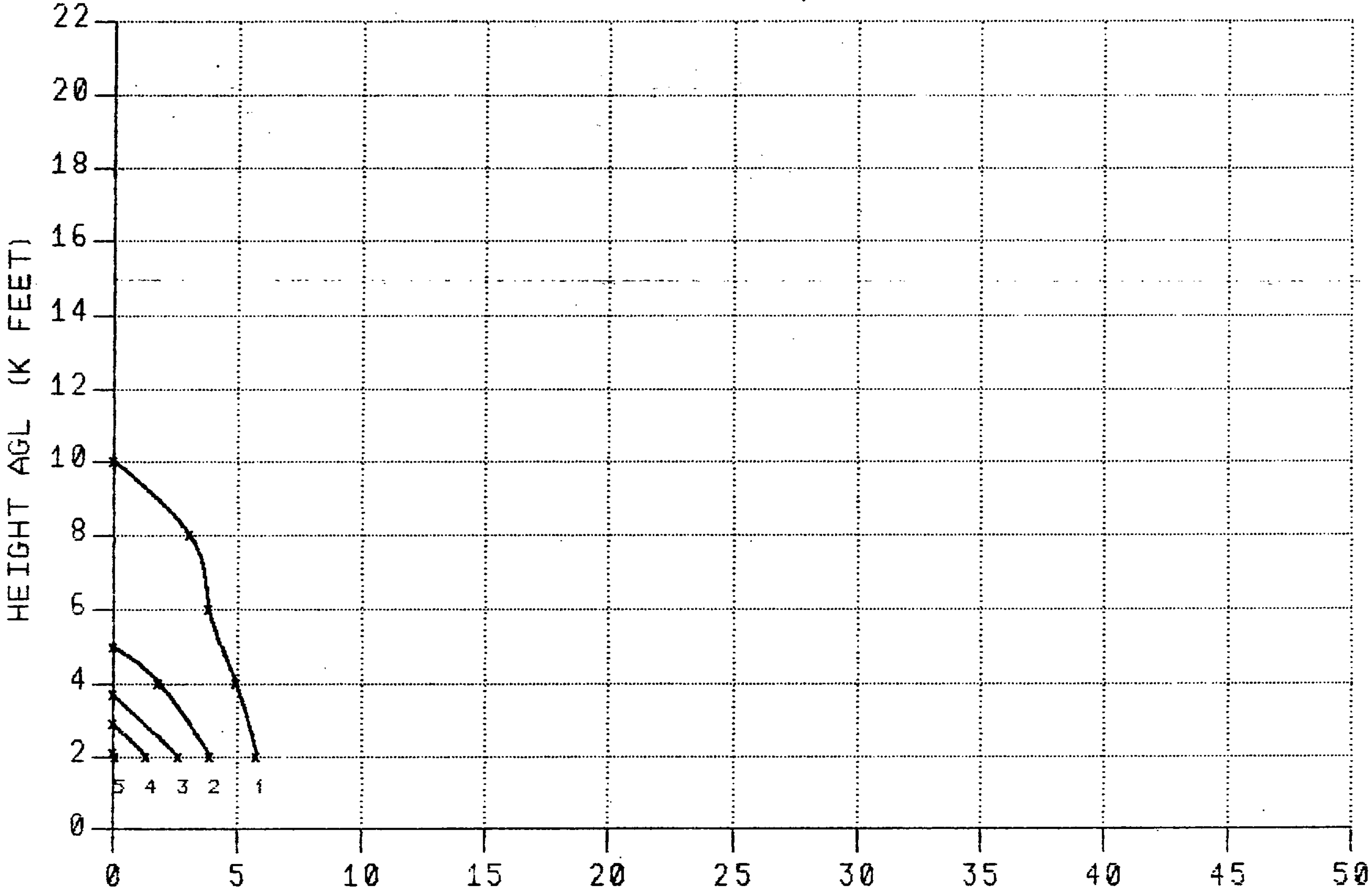
BKGND. REFLECTANCE: 00 TO 14 PERCENT
SOLAR ELEV. ANGLE : 31 TO 55 DEGREE
SURFACE VISIBILITY: 1 MILE (1.6 KM)
MIXING LYR. DEPTH : 6000 FEET



CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

CLOUD COVER: CLR-SCT

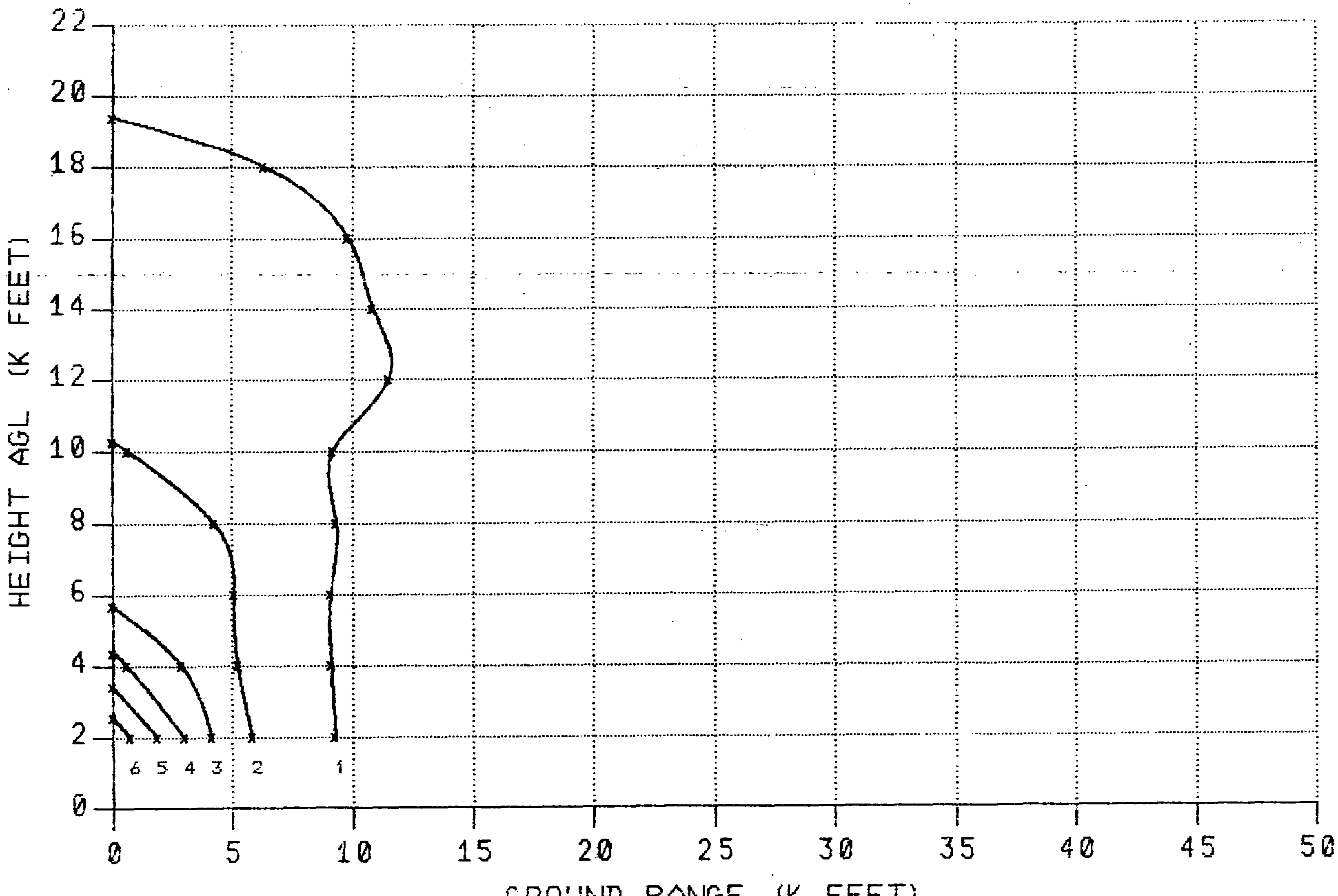
BKGND. REFLECTANCE: 00 TO 14 PERCENT
SOLAR ELEV. ANGLE : 31 TO 55 DEGREE
SURFACE VISIBILITY: 3 MILES (4.8 KM)
MIXING LYR. DEPTH : 6000 FEET



CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

CLOUD COVER: CLR-SCT

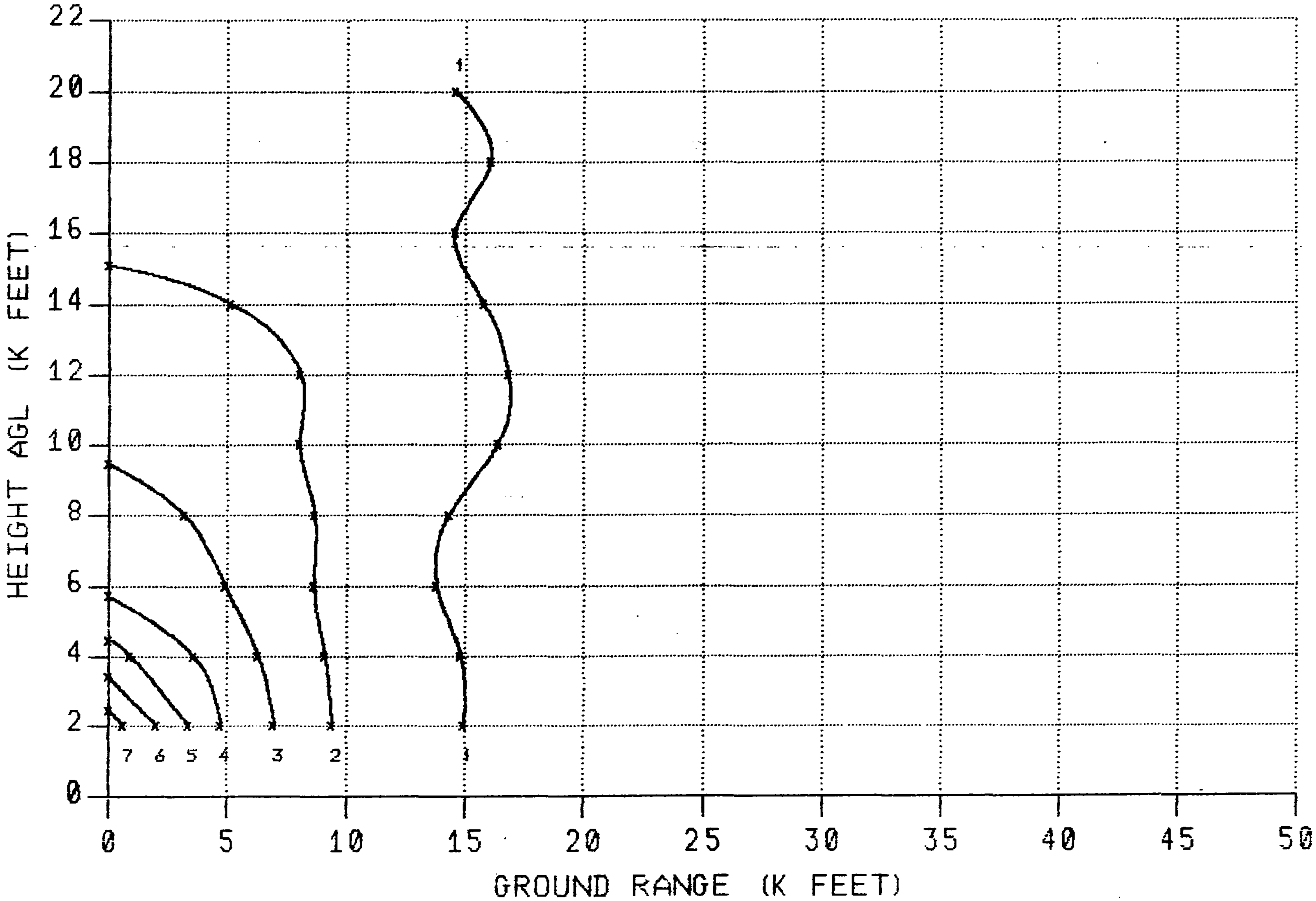
BKGND. REFLECTANCE: 00 TO 14 PERCENT
SOLAR ELEV. ANGLE : 31 TO 55 DEGREE
SURFACE VISIBILITY: 5 MILES (8.0 KM)
MIXING LYR. DEPTH : 6000 FEET



CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

CLOUD COVER: CLR-SCT

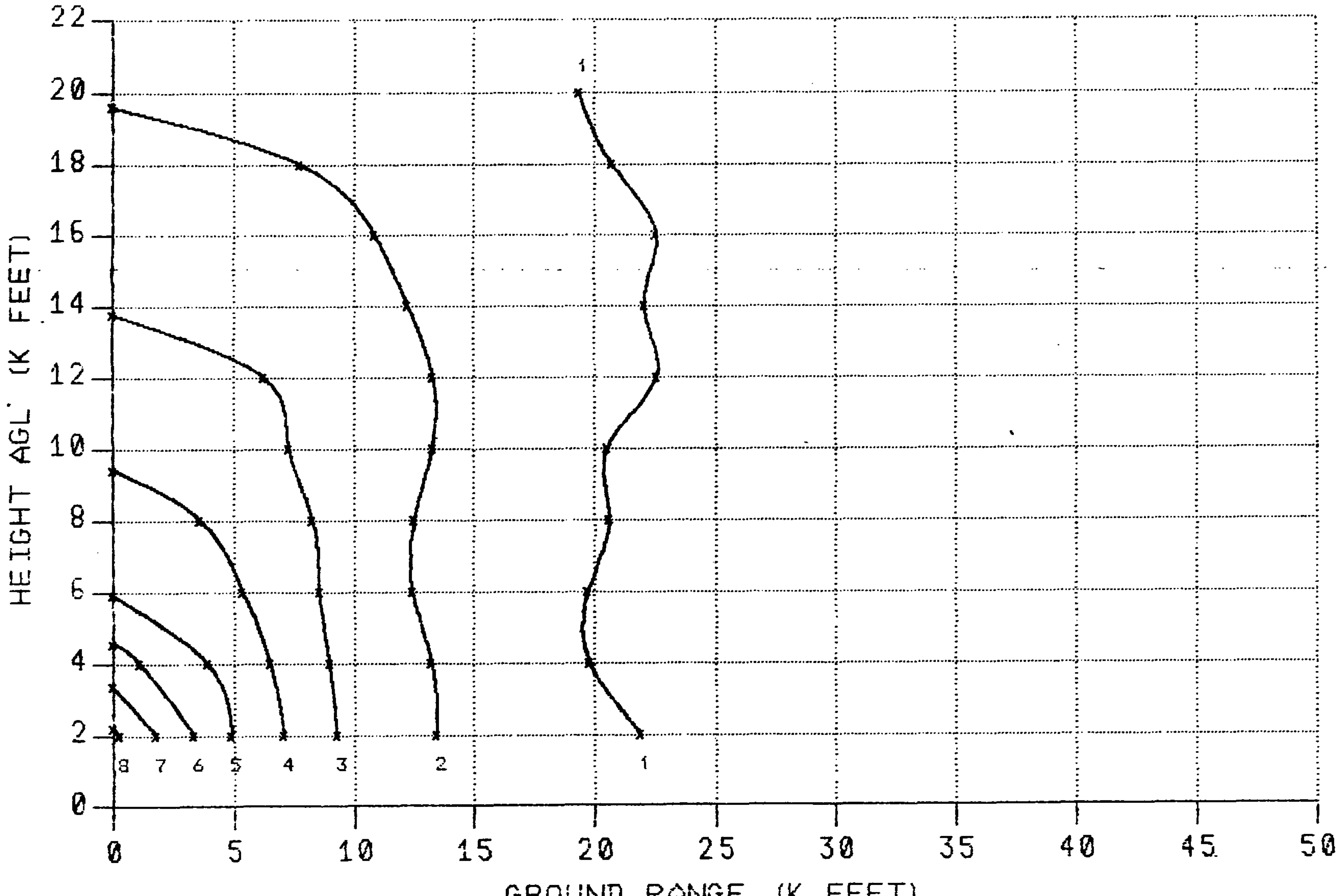
BKGND. REFLECTANCE: 00 TO 14 PERCENT
SOLAR ELEV. ANGLE : 31 TO 55 DEGREE
SURFACE VISIBILITY: 7 MILES (11.3 KM)
MIXING LYR. DEPTH : 6000 FEET



CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

CLOUD COVER: CLR-SCT

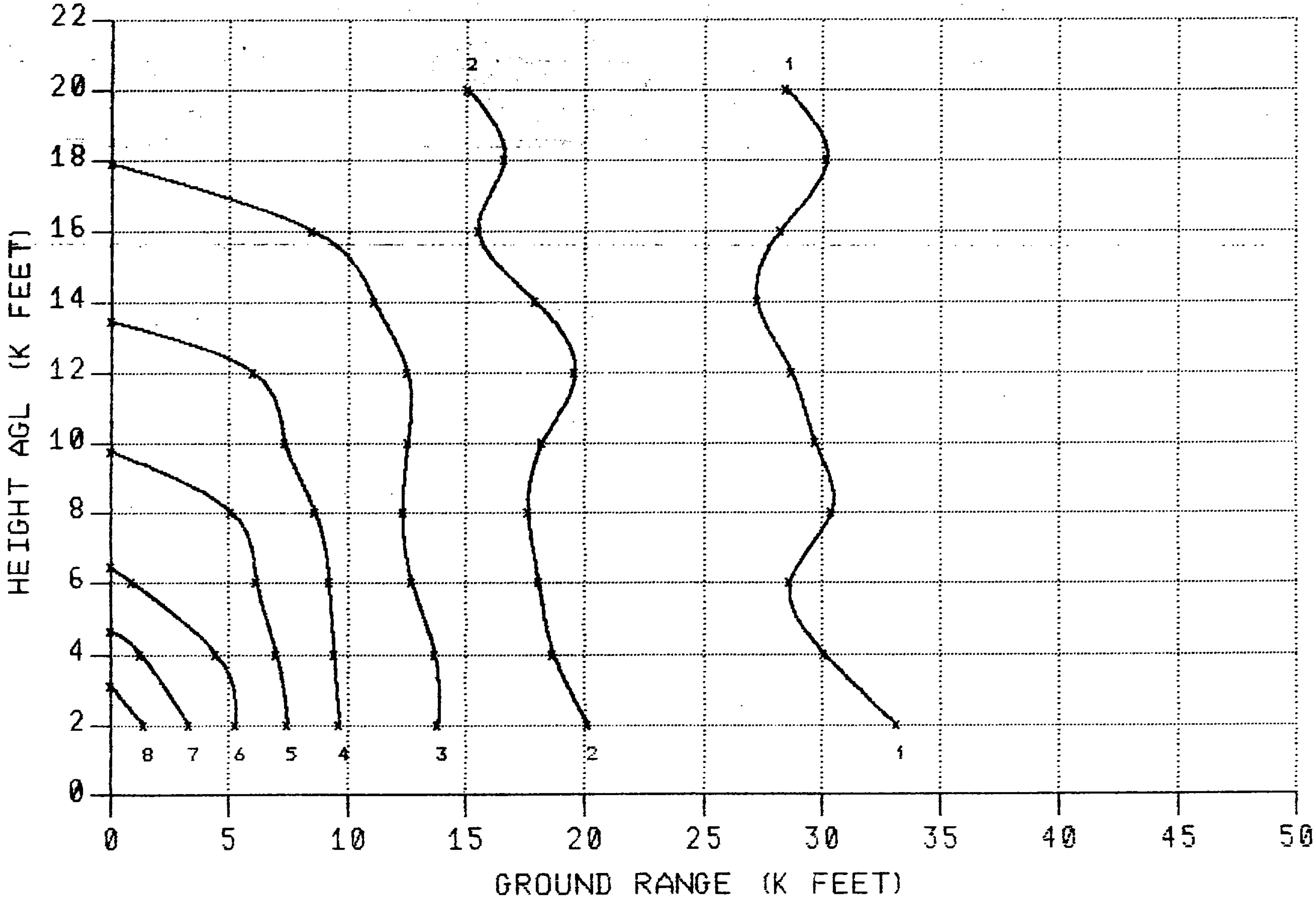
BKGND. REFLECTANCE: 00 TO 14 PERCENT
SOLAR ELEV. ANGLE : 31 TO 55 DEGREE
SURFACE VISIBILITY: 10 MILES (16.1 KM)
MIXING LYR. DEPTH : 6000 FEET



CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

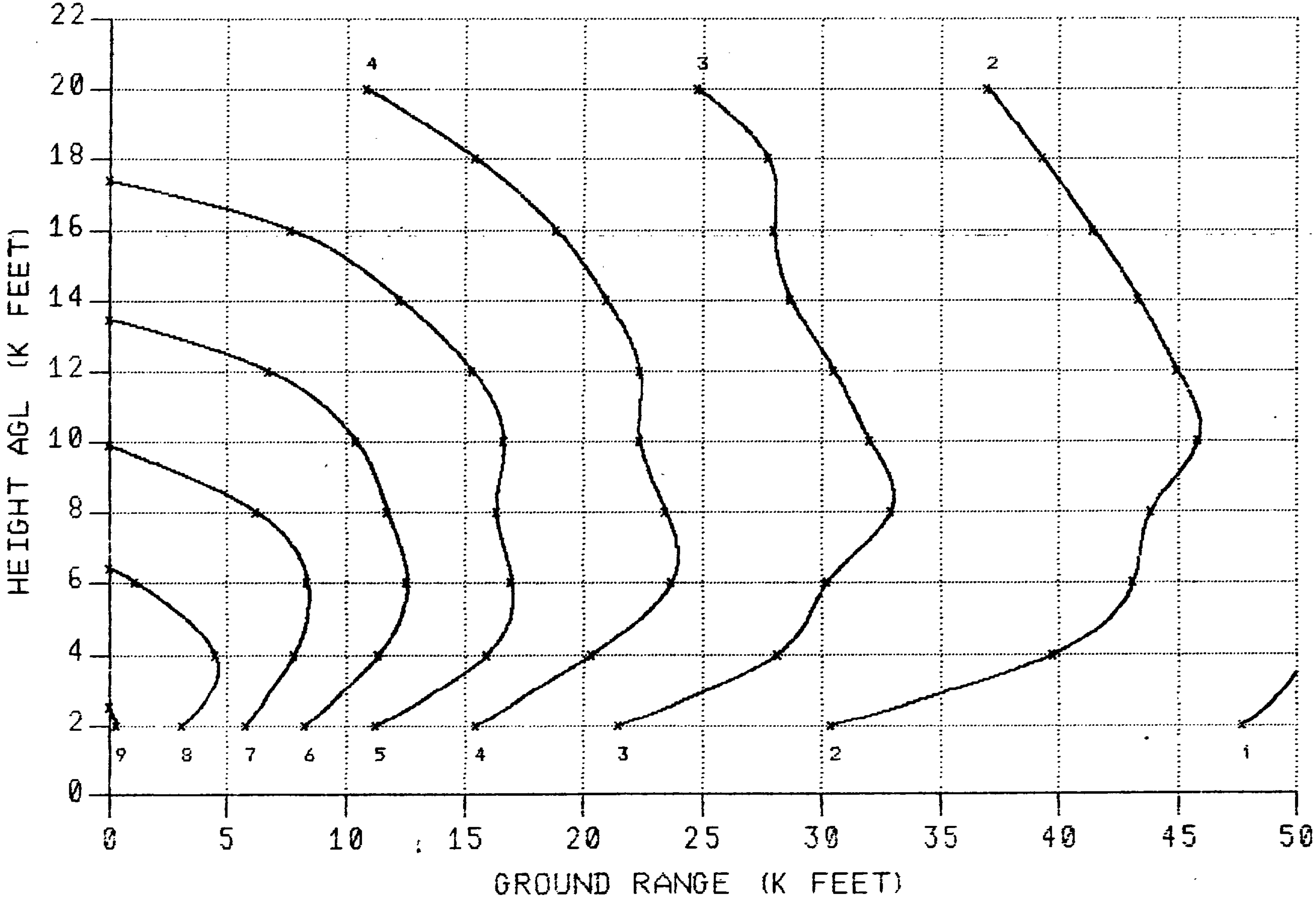
CLOUD COVER: CLR-SCT

BKGND. REFLECTANCE: 00 TO 14 PERCENT
SOLAR ELEV. ANGLE : 31 TO 55 DEGREE
SURFACE VISIBILITY: 15 MILES (24.1 KM)
MIXING LYR. DEPTH : 6000 FEET



CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

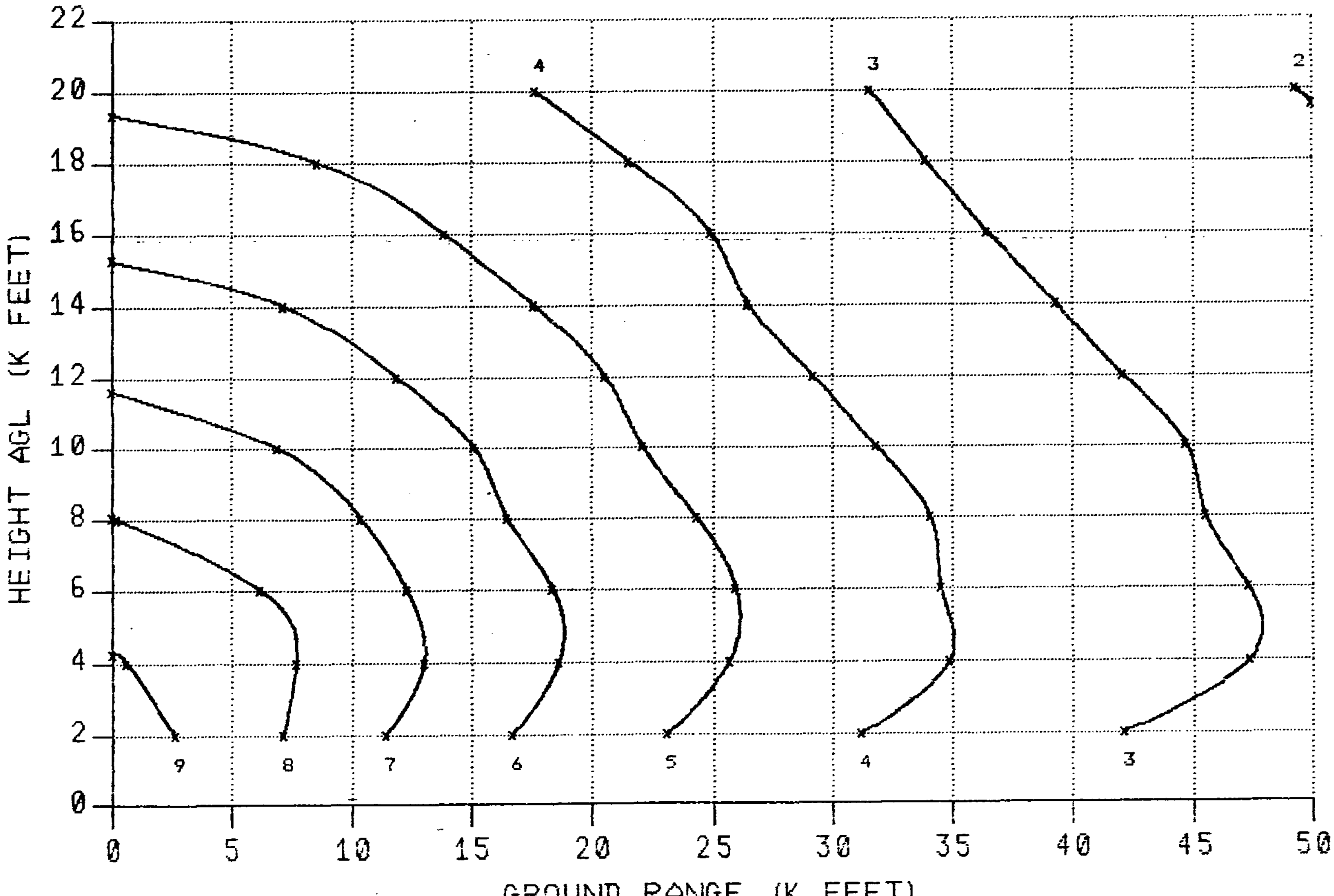
CLOUD COVER: CLR-SCT BKGND. REFLECTANCE: 00 TO 14 PERCENT
SOLAR ELEV. ANGLE : 56 TO 90 DEGREE
SURFACE VISIBILITY: 1 MILE (1.6 KM)
MIXING LYR. DEPTH : BELOW 50 FEET



CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

CLOUD COVER: CLR-SCT

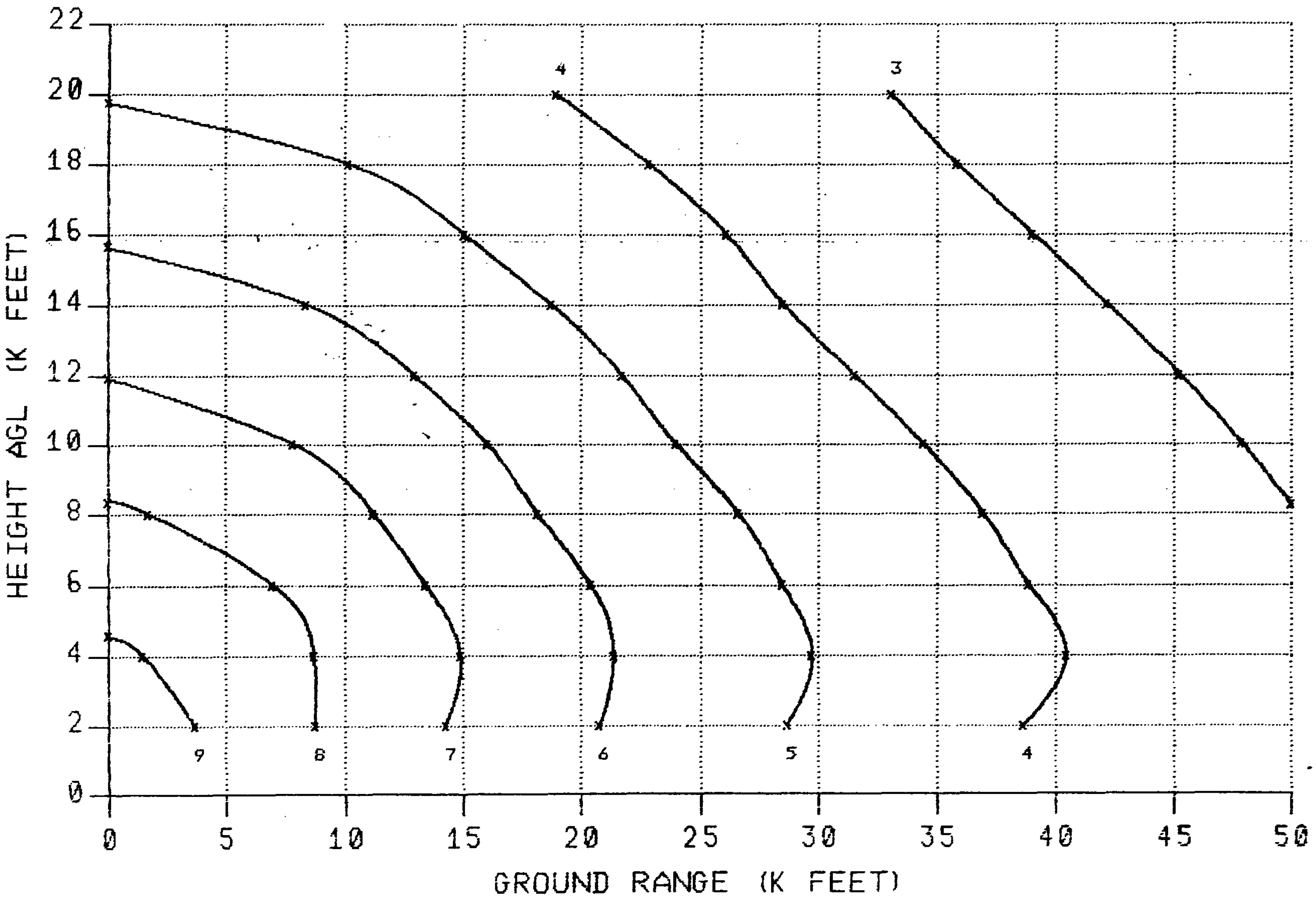
BKGND. REFLECTANCE: 00 TO 14 PERCENT
SOLAR ELEV. ANGLE : 56 TO 90 DEGREE
SURFACE VISIBILITY: 3 MILES (4.8 KM)
MIXING LYR. DEPTH : BELOW 50 FEET



CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

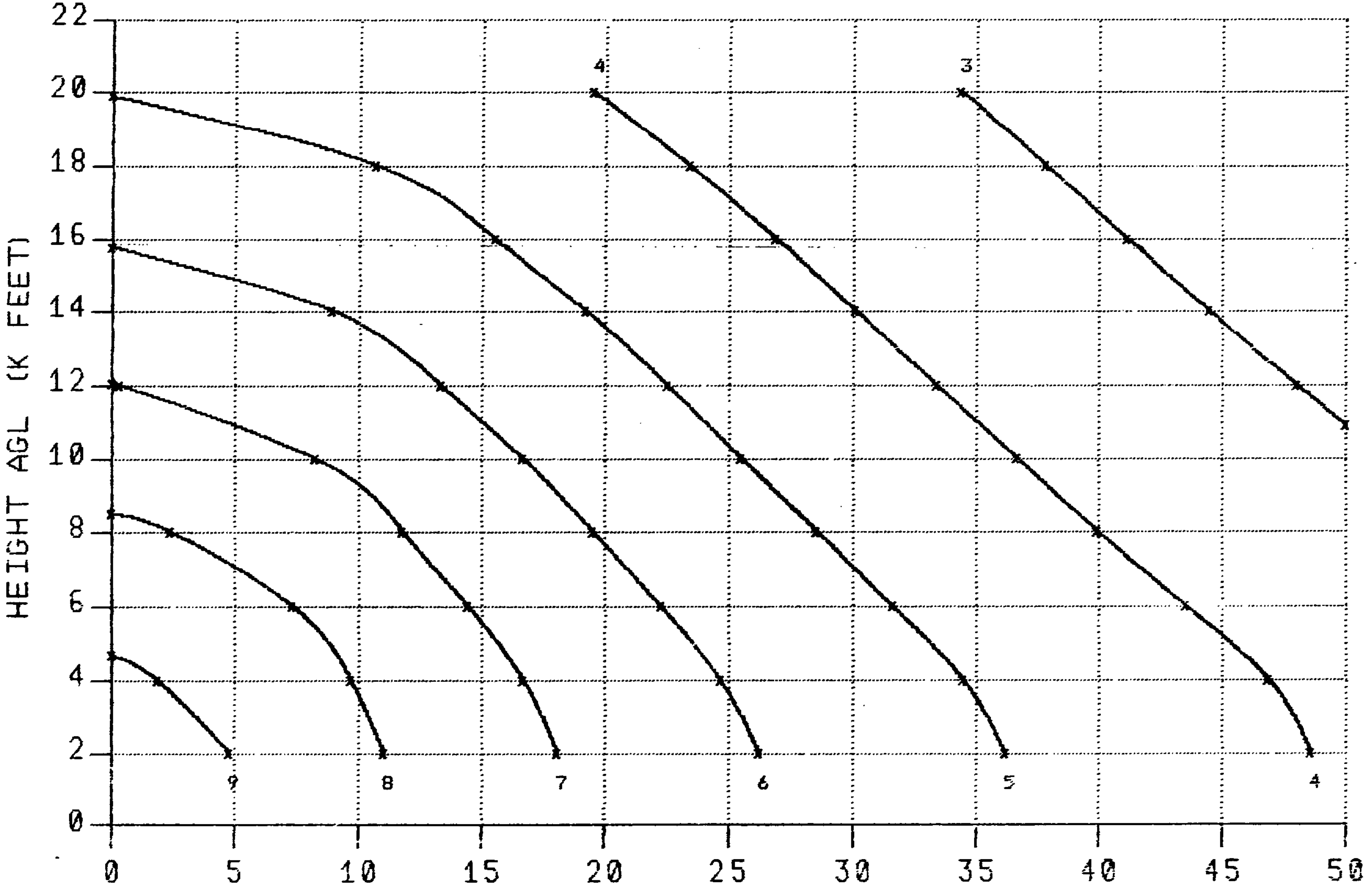
CLOUD COVER: CLR-SCT

BKGND. REFLECTANCE: 00 TO 14 PERCENT
SOLAR ELEV. ANGLE : 56 TO 90 DEGREE
SURFACE VISIBILITY: 5 MILES (8.0 KM)
MIXING LYR. DEPTH : BELOW 50 FEET



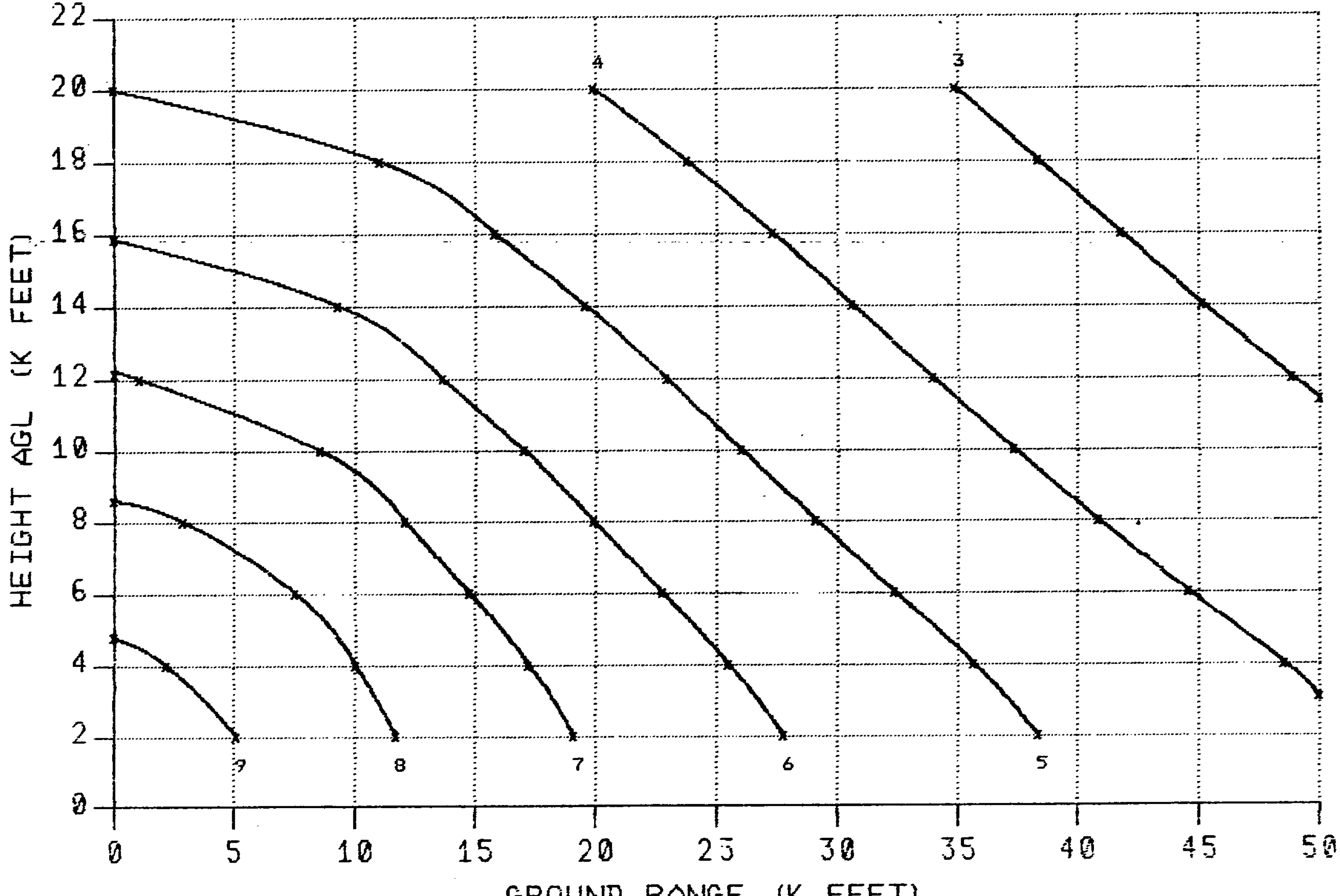
CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

CLOUD COVER: CLR-SCT BKGND. REFLECTANCE: 00 TO 14 PERCENT
SOLAR ELEV. ANGLE : 56 TO 90 DEGREE
SURFACE VISIBILITY: 7 MILES (11.3 KM)
MIXING LYR. DEPTH : BELOW 50 FEET



CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

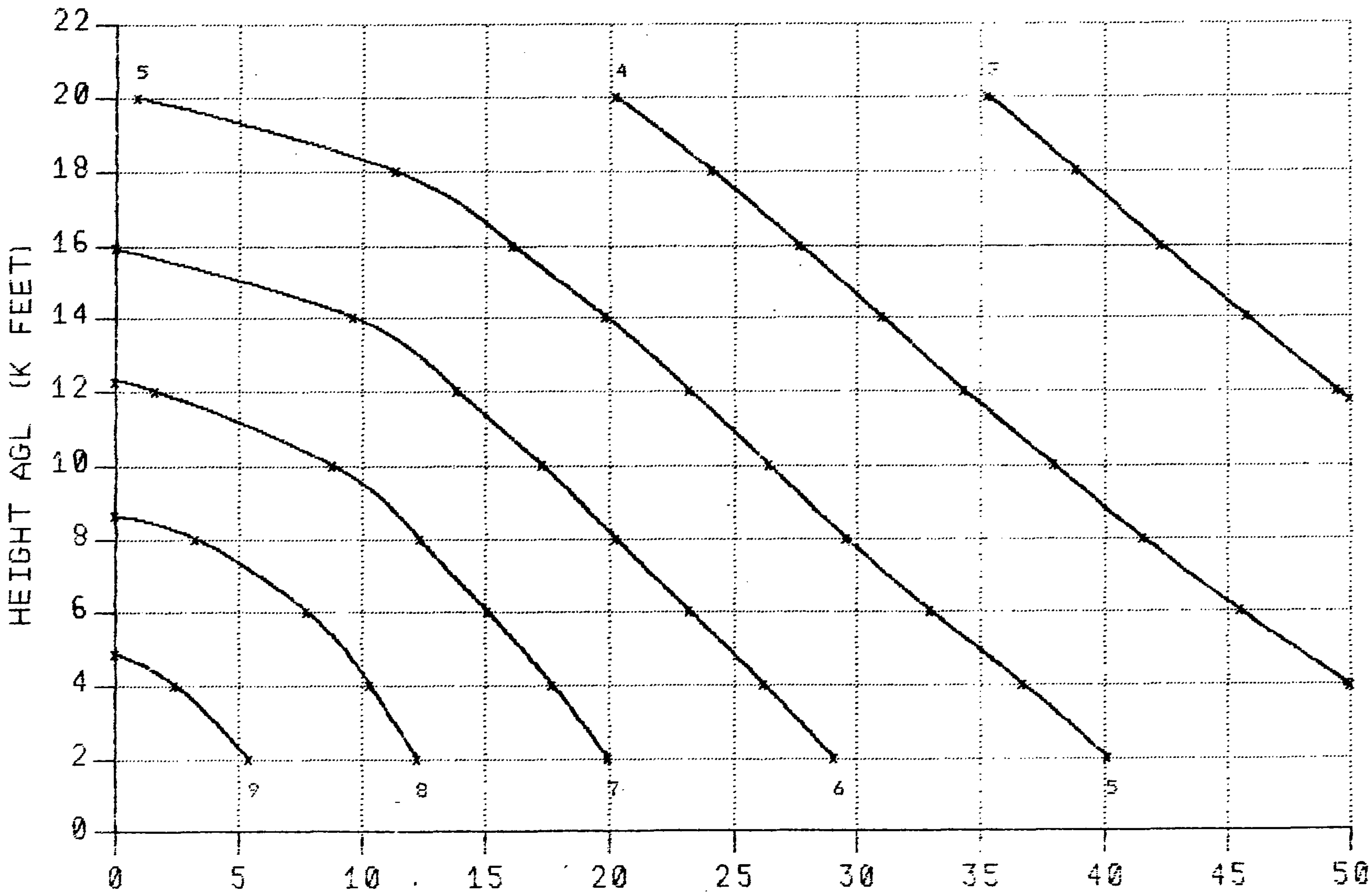
CLOUD COVER: CLR-SCT BKGND. REFLECTANCE: 00 TO 14 PERCENT
SOLAR ELEV. ANGLE : 56 TO 90 DEGREE
SURFACE VISIBILITY: 10 MILES (16.1 KM)
MIXING LYR. DEPTH : BELOW 50 FEET



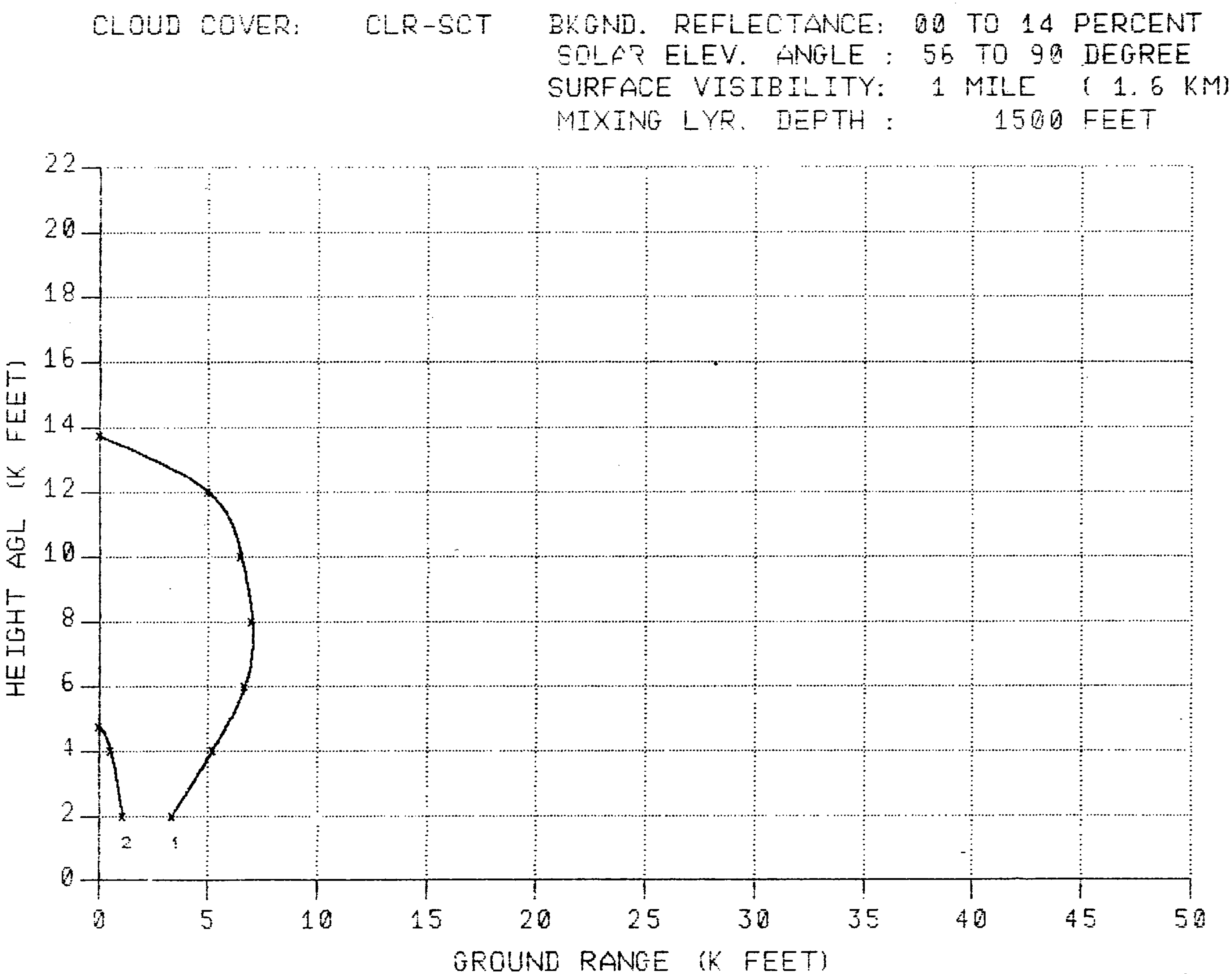
CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

CLOUD COVER: CLR-SCT

BKGND. REFLECTANCE: 00 TO 14 PERCENT
SOLAR ELEV. ANGLE : 56 TO 90 DEGREE
SURFACE VISIBILITY: 15 MILES (24.1 KM)
MIXING LYR. DEPTH : BELOW 50 FEET



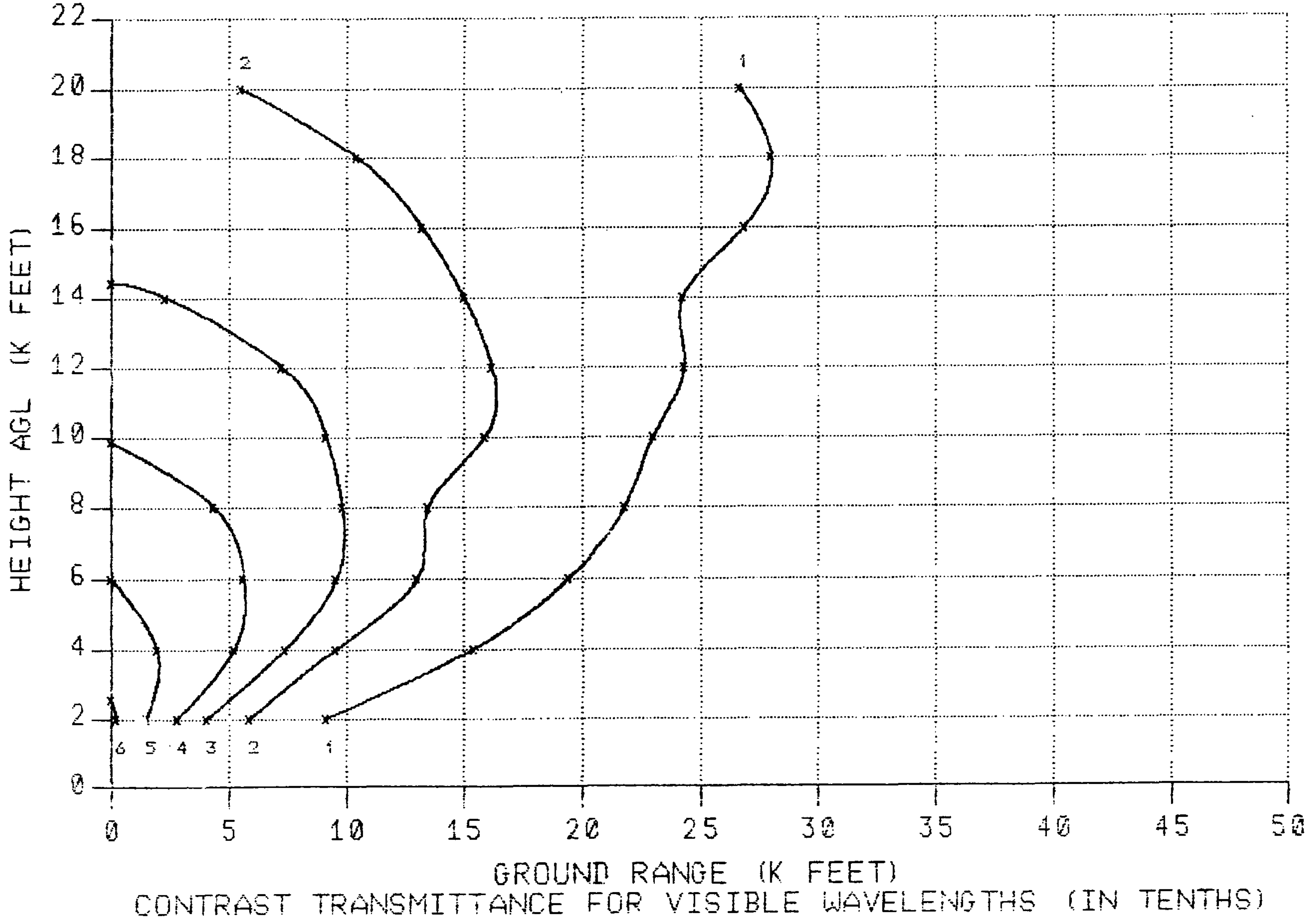
GROUND RANGE (K FEET)
CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)



CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

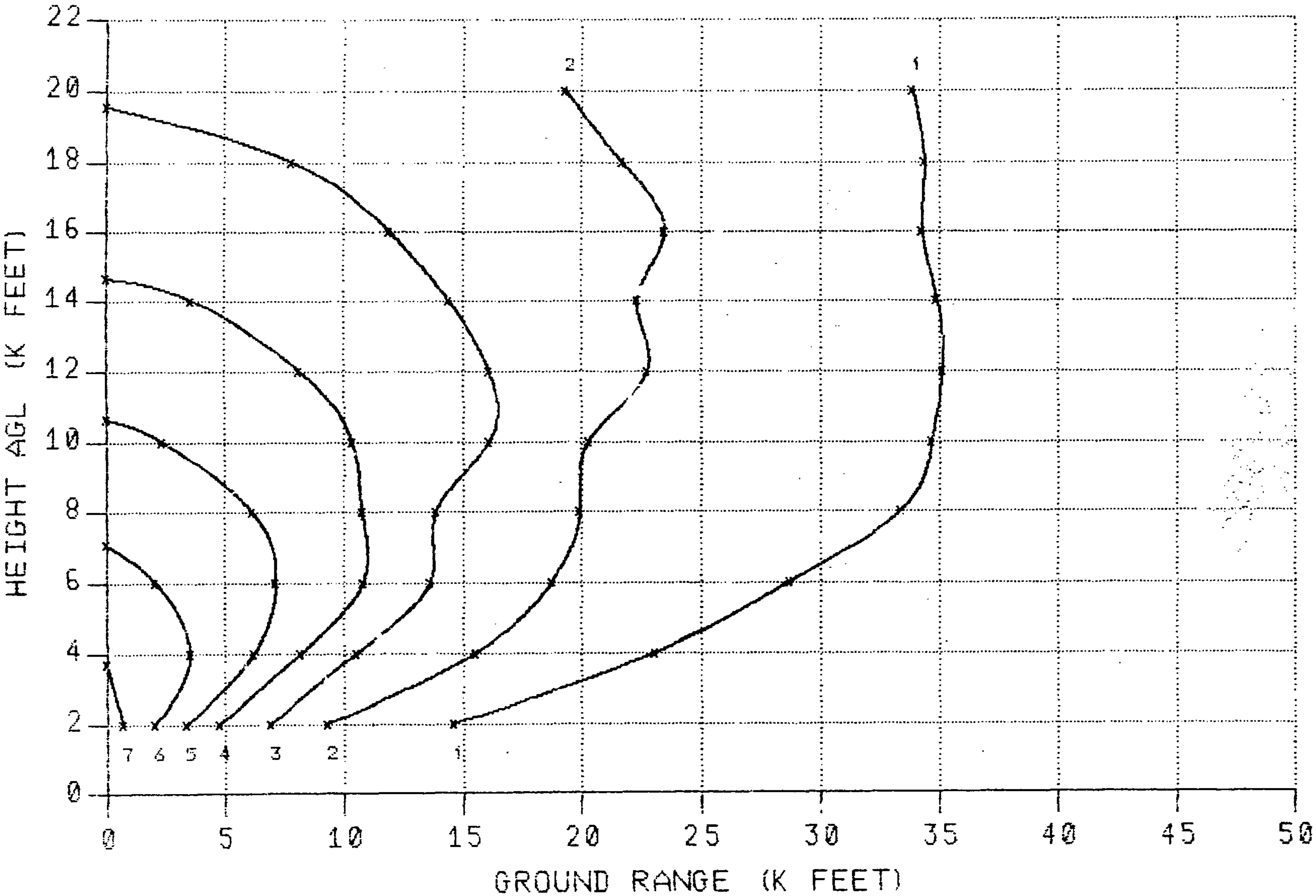
CLOUD COVER: CLR-SCT

BKGND. REFLECTANCE: 00 TO 14 PERCENT
SOLAR ELEV. ANGLE : 56 TO 90 DEGREE
SURFACE VISIBILITY: 3 MILES (4.8 KM)
MIXING LYR. DEPTH : 1500 FEET



CLOUD COVER: CLR-SCT

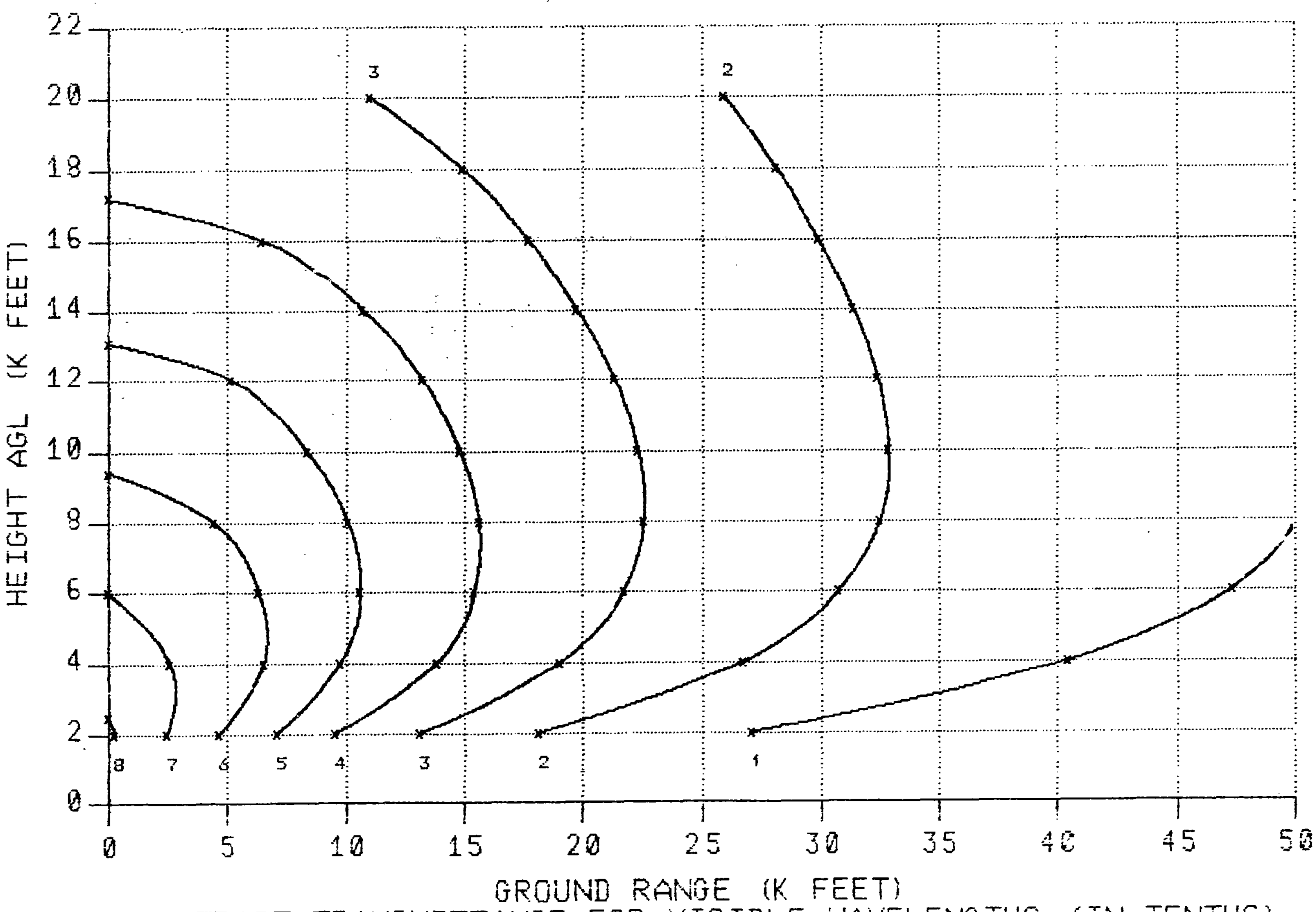
BKGND. REFLECTANCE: 00 TO 14 PERCENT
SOLAR ELEV. ANGLE : 56 TO 90 DEGREE
SURFACE VISIBILITY: 5 MILES (8.0 KM)
MIXING LYR. DEPTH : 1500 FEET



CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

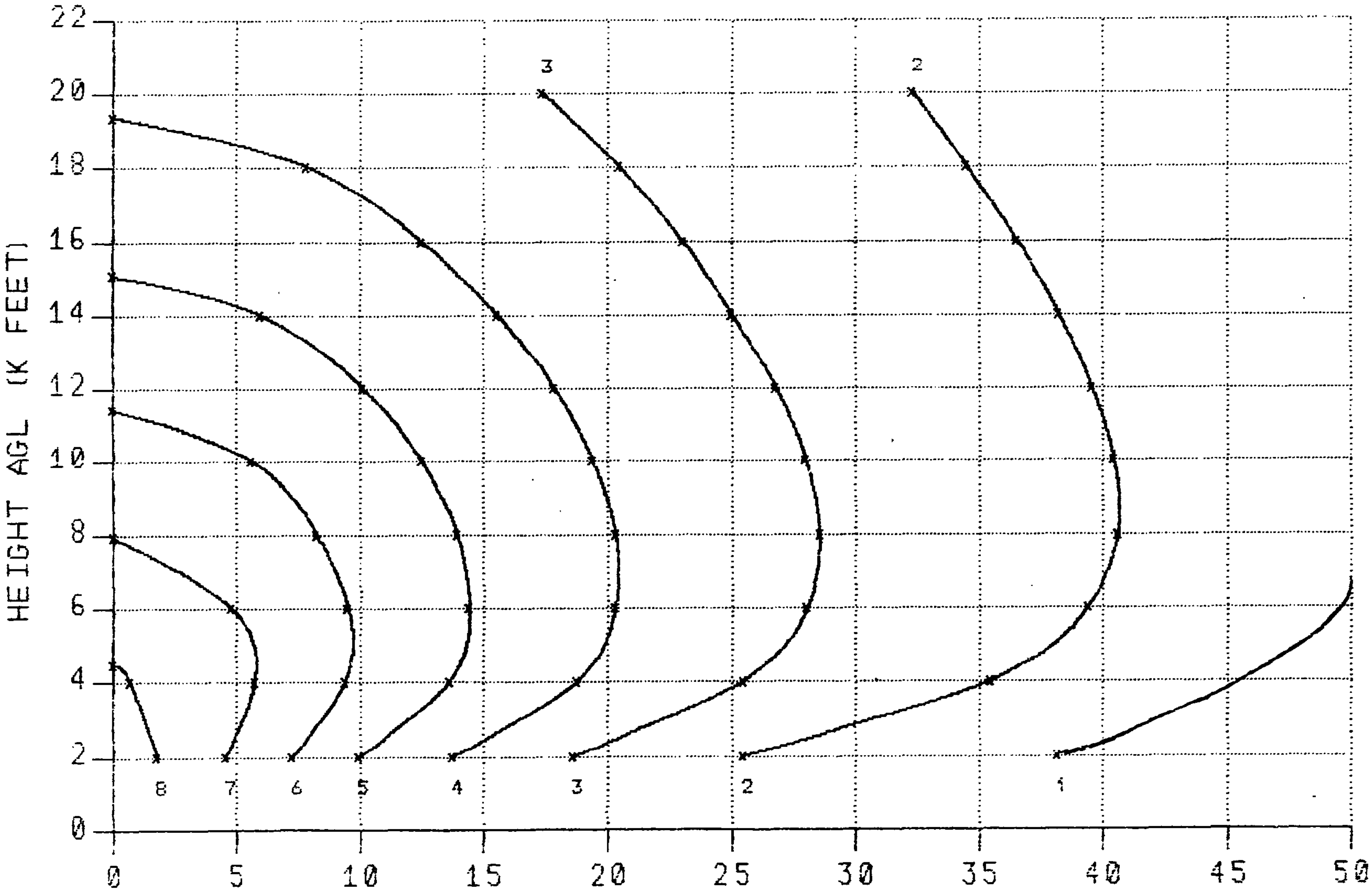
CLOUD COVER: CLR-SCT

BKGND. REFLECTANCE: 00 TO 14 PERCENT
SOLAR ELEV. ANGLE : 56 TO 90 DEGREE
SURFACE VISIBILITY: 7 MILES (11.3 KM)
MIXING LYR. DEPTH : 1500 FEET



CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

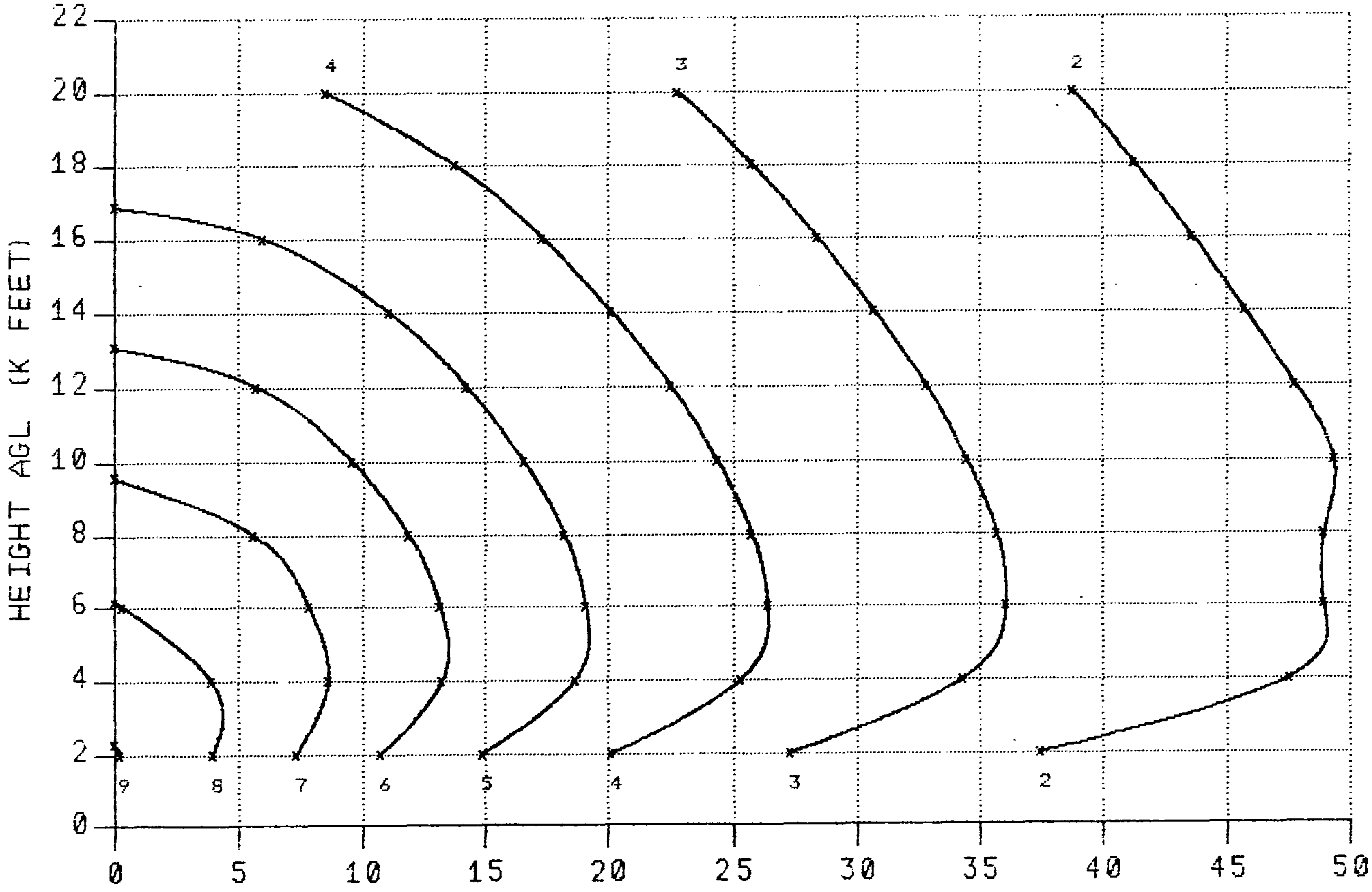
CLOUD COVER: CLR-SCT
BKGND. REFLECTANCE: 00 TO 14 PERCENT
SOLAR ELEV. ANGLE : 56 TO 90 DEGREE
SURFACE VISIBILITY: 10 MILES (16.1 KM)
MIXING LYR. DEPTH : 1500 FEET



GROUND RANGE (K FEET)
CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

CLOUD COVER: CLR-SCT

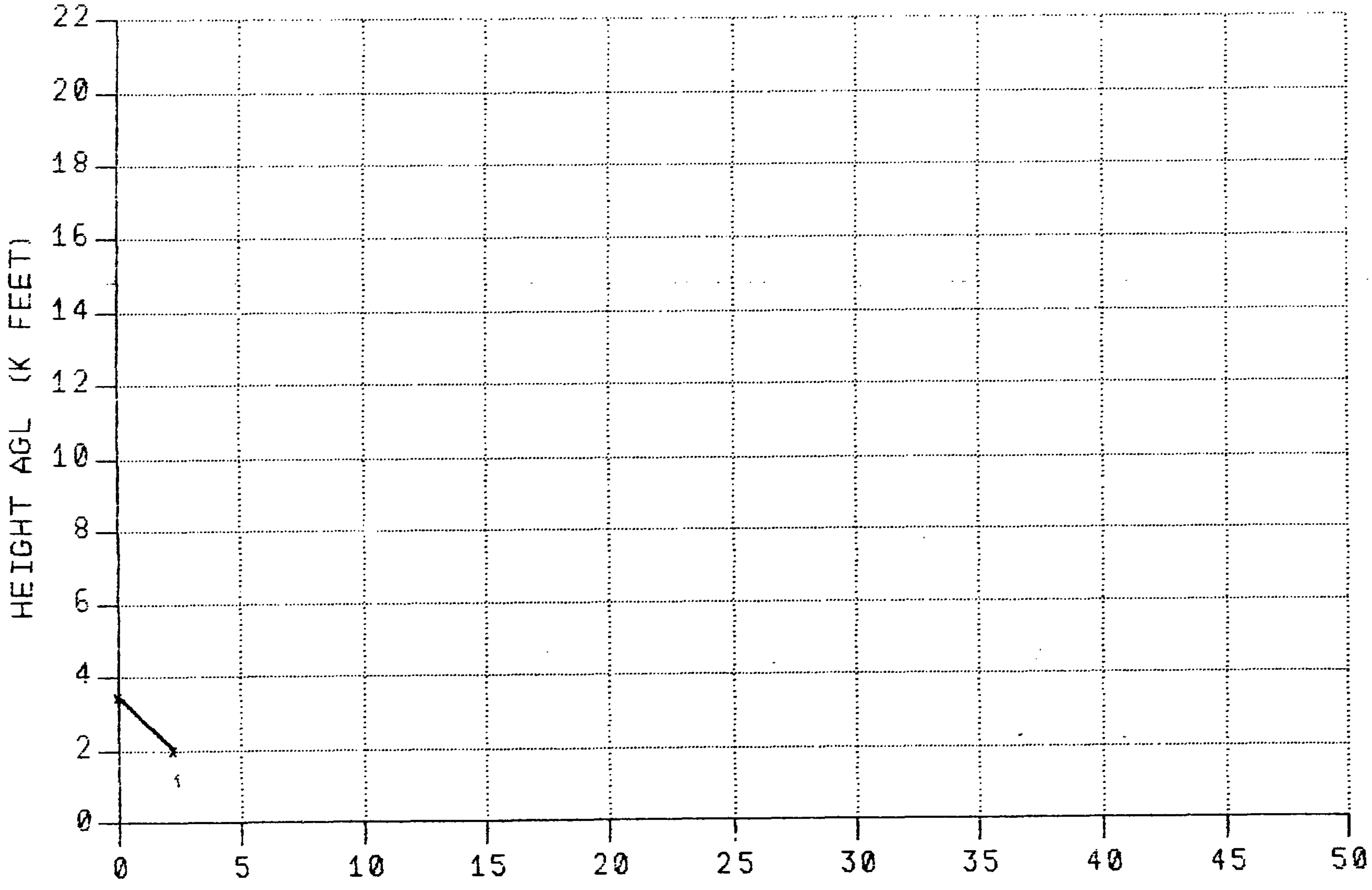
BKGND. REFLECTANCE: 00 TO 14 PERCENT
SOLAR ELEV. ANGLE : 56 TO 90 DEGREE
SURFACE VISIBILITY: 15 MILES (24.1 KM)
MIXING LYR. DEPTH : 1500 FEET



CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

CLOUD COVER: CLR-SCT

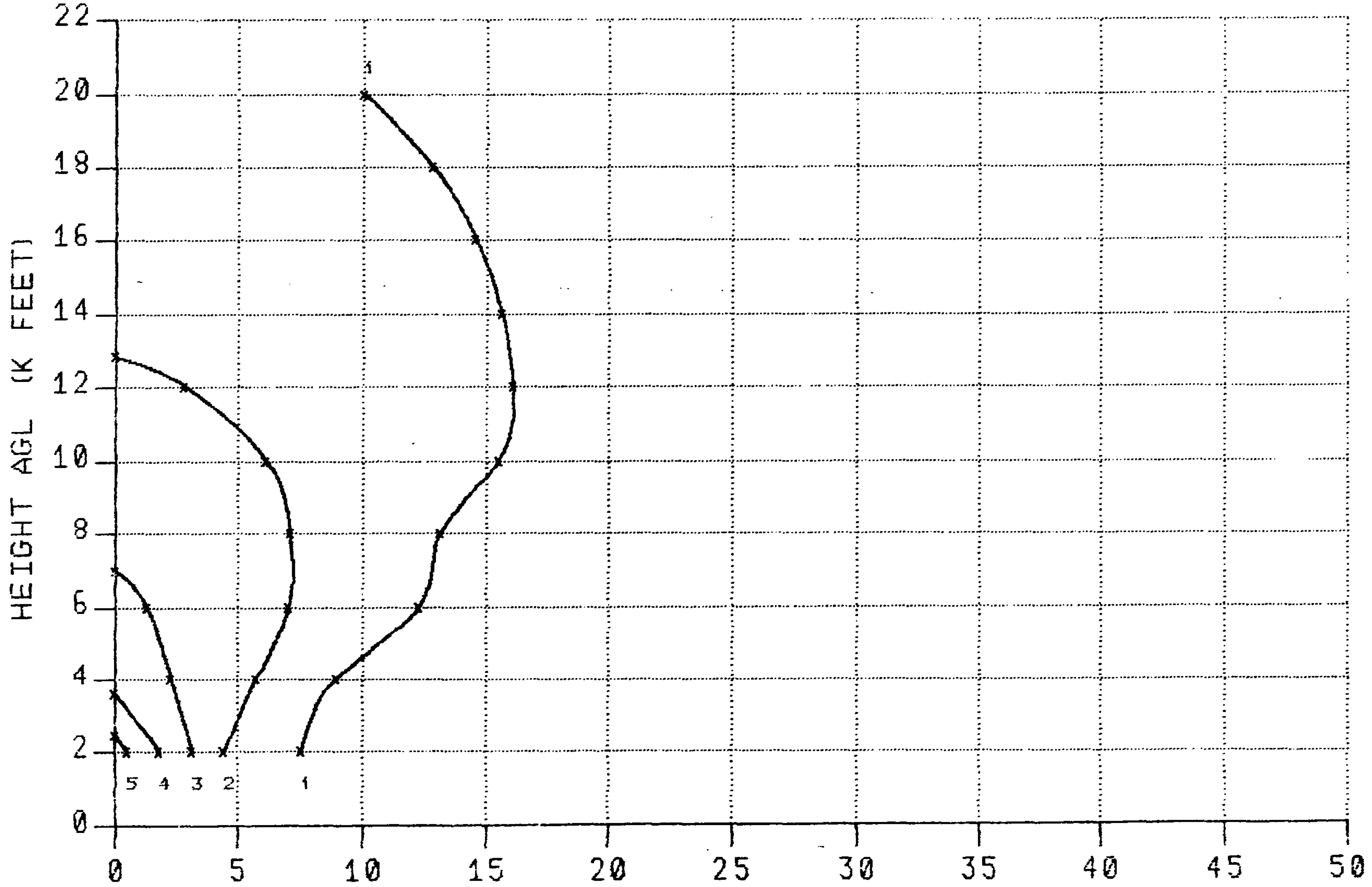
BKGND. REFLECTANCE: 00 TO 14 PERCENT
SOLAR ELEV. ANGLE : 56 TO 90 DEGREE
SURFACE VISIBILITY: 1 MILE (1.6 KM)
MIXING LYR. DEPTH : 3000 FEET



CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

CLOUD COVER: CLR-SCT

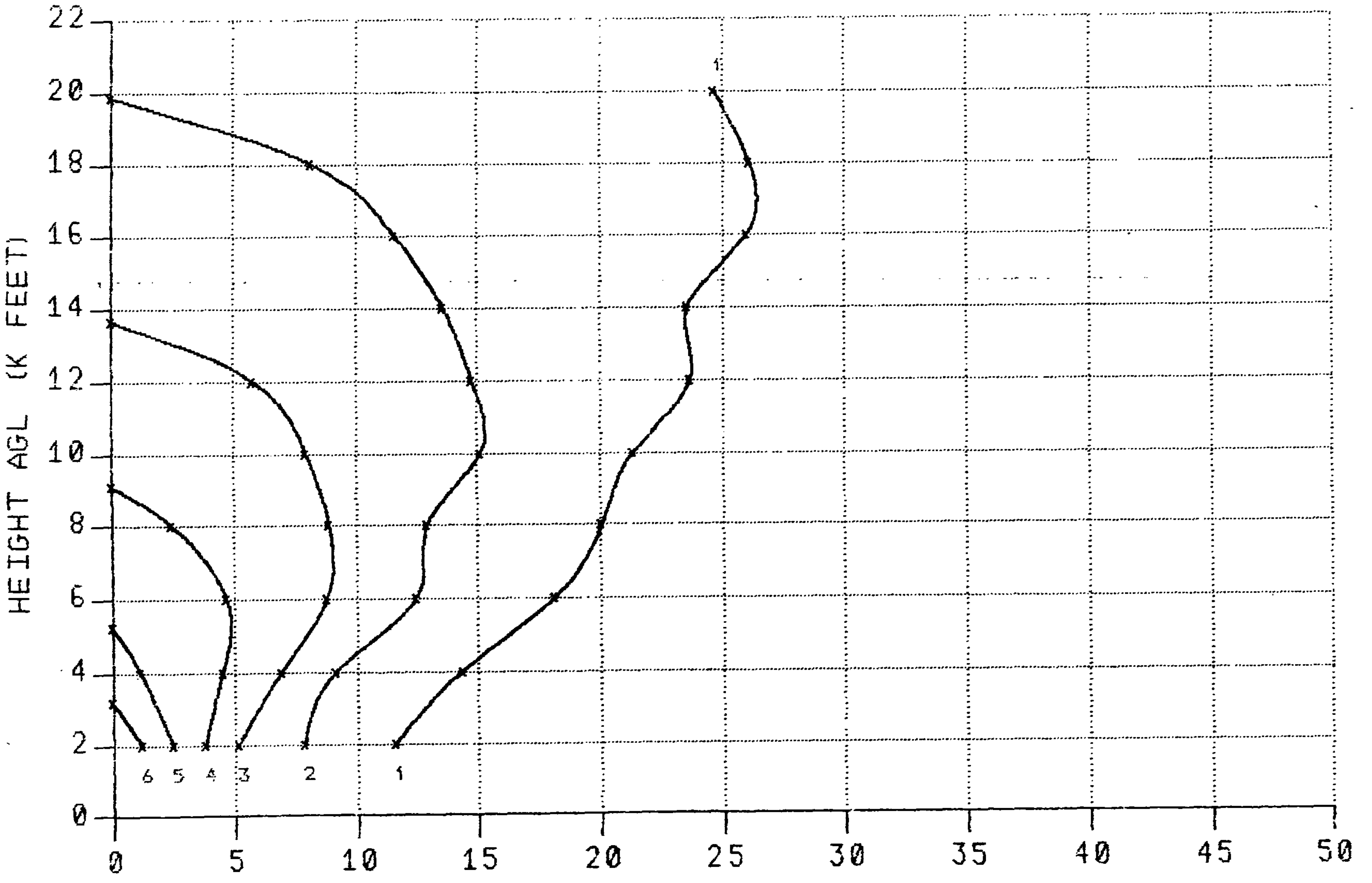
BKGND. REFLECTANCE: 00 TO 14 PERCENT
SOLAR ELEV. ANGLE : 56 TO 90 DEGREE
SURFACE VISIBILITY: 3 MILES (4.8 KM)
MIXING LYR. DEPTH : 3000 FEET



CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

CLOUD COVER: CLR-SCT

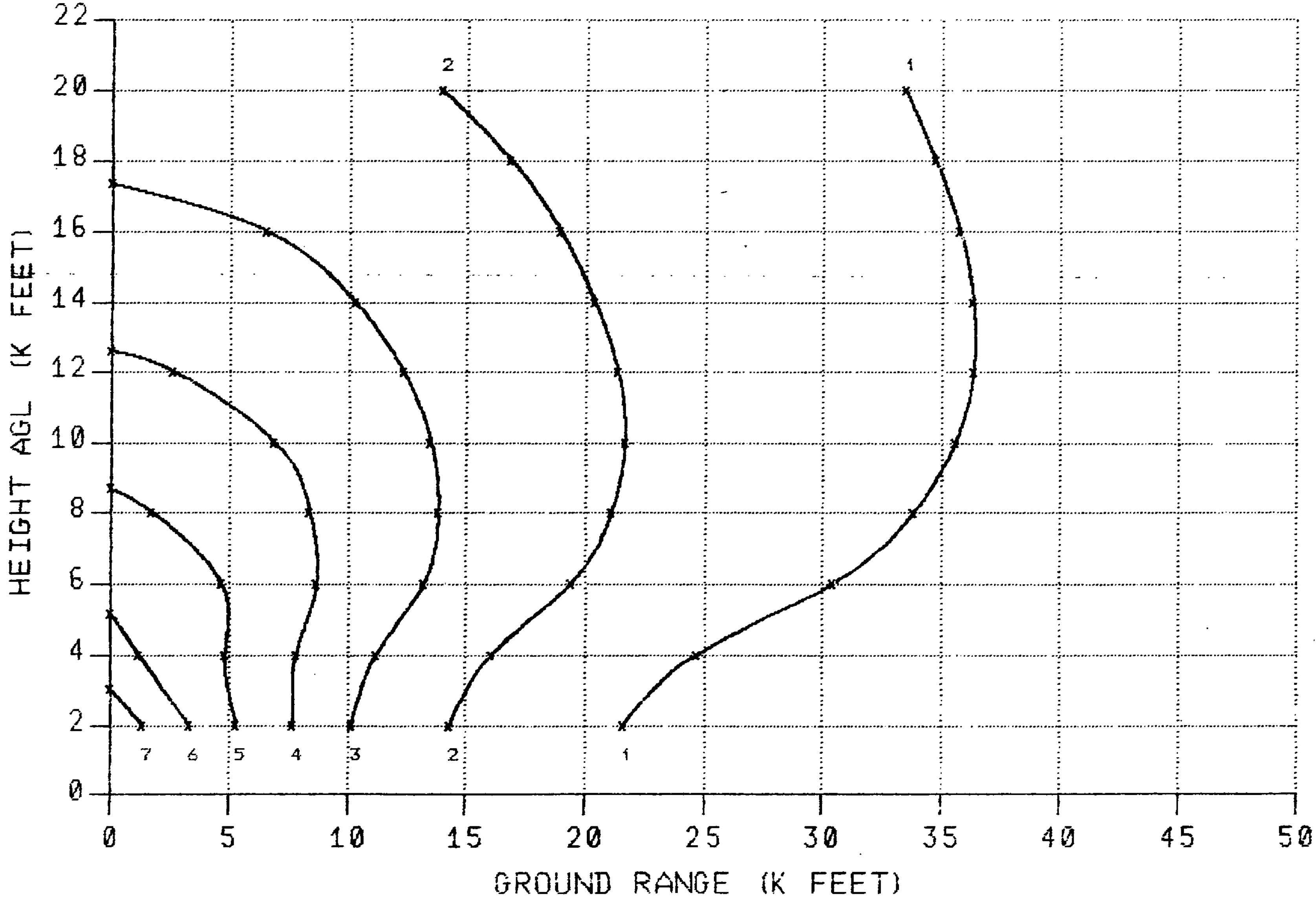
BKGND. REFLECTANCE: 00 TO 14 PERCENT
SOLAR ELEV. ANGLE : 56 TO 90 DEGREE
SURFACE VISIBILITY: 5 MILES (8.0 KM)
MIXING LYR. DEPTH : 3000 FEET



CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

CLOUD COVER: CLR-SCT

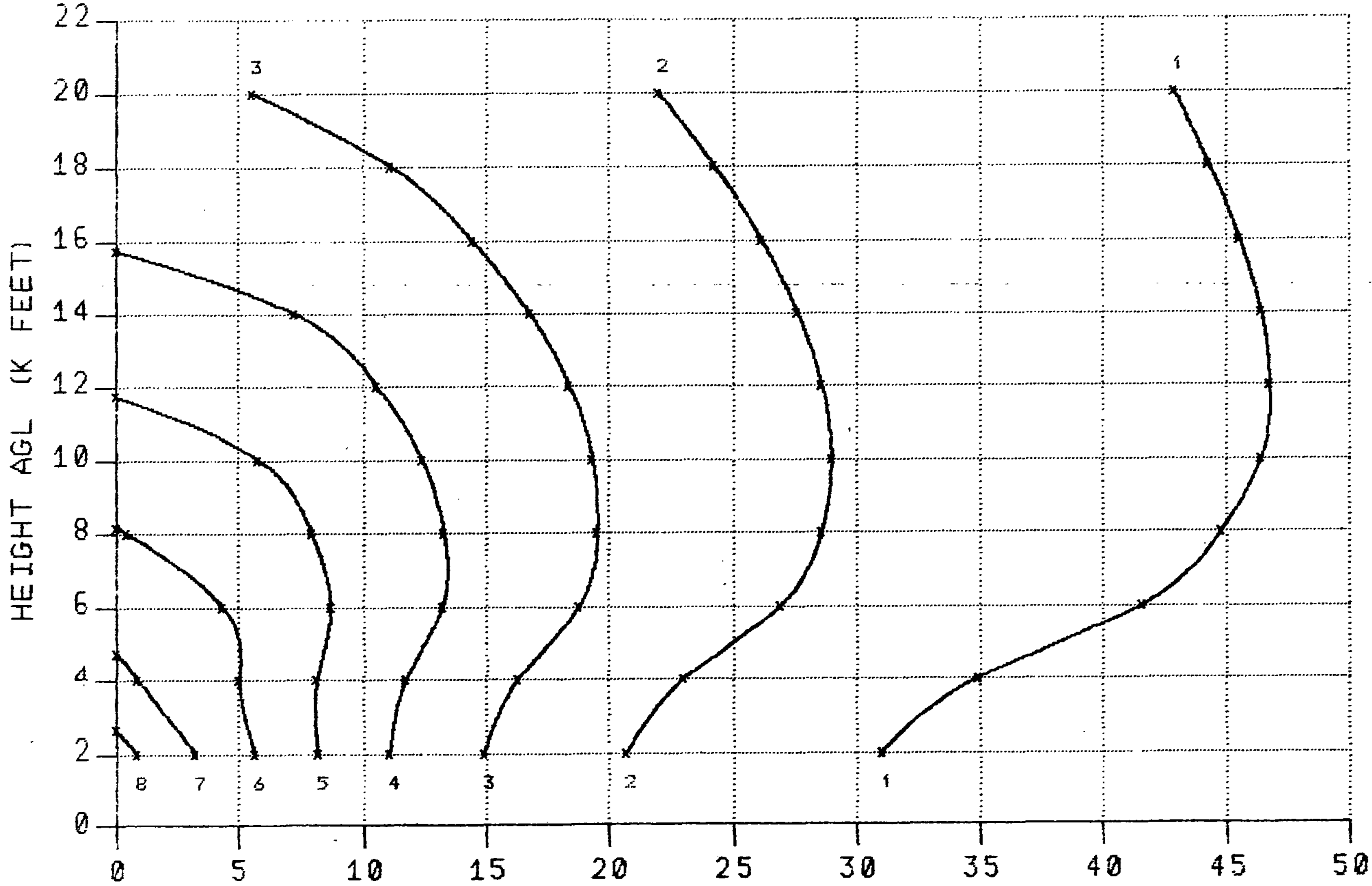
BKGND. REFLECTANCE: 00 TO 14 PERCENT
SOLAR ELEV. ANGLE : 56 TO 90 DEGREE
SURFACE VISIBILITY: 7 MILES (11.3 KM)
MIXING LYR. DEPTH : 3000 FEET



CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

CLOUD COVER: CLR-SCT

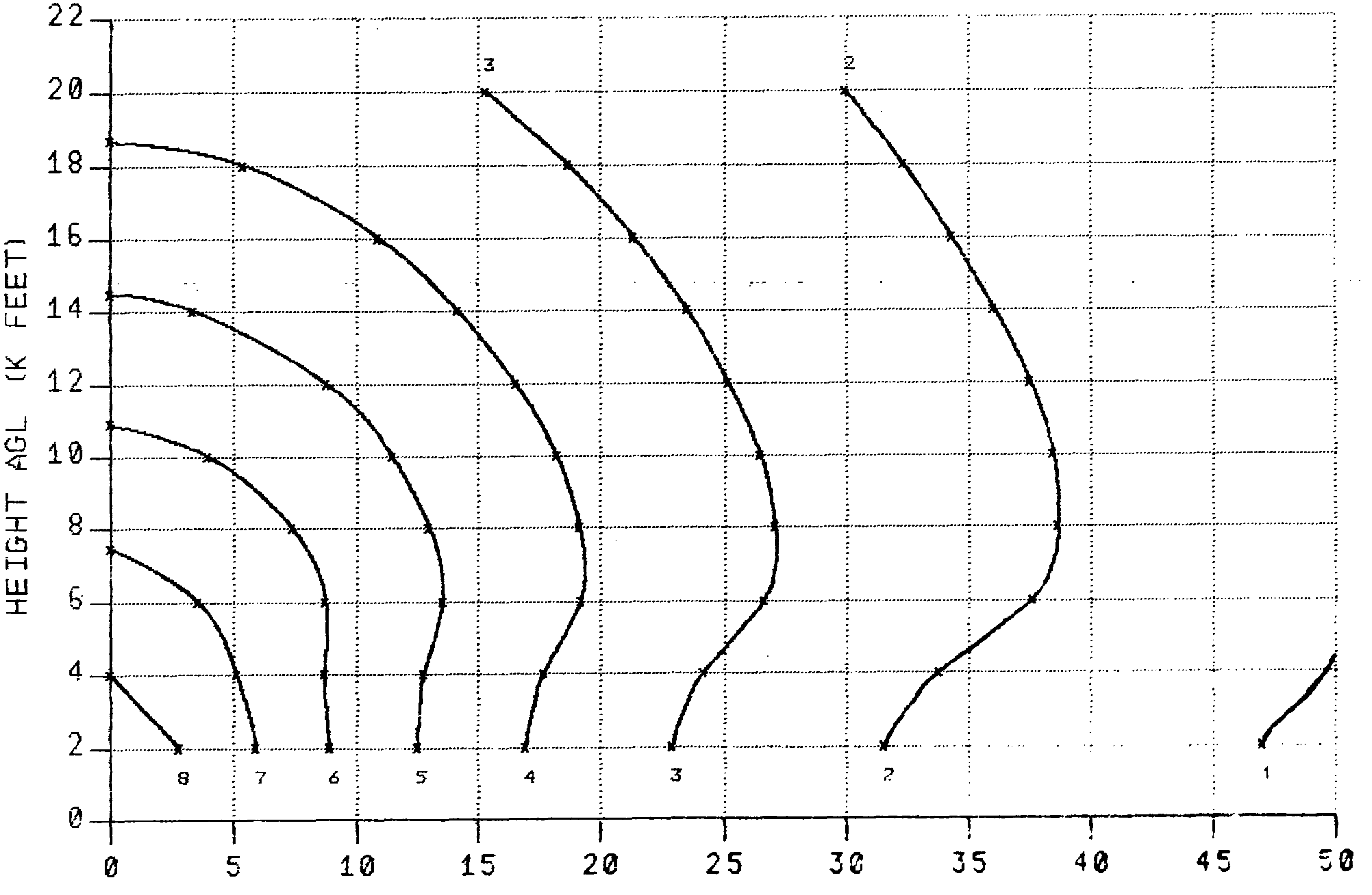
BKGND. REFLECTANCE: 00 TO 14 PERCENT
SOLAR ELEV. ANGLE : 56 TO 90 DEGREE
SURFACE VISIBILITY: 10 MILES (16.1 KM)
MIXING LYR. DEPTH : 3000 FEET



CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

CLOUD COVER: CLR-SCT

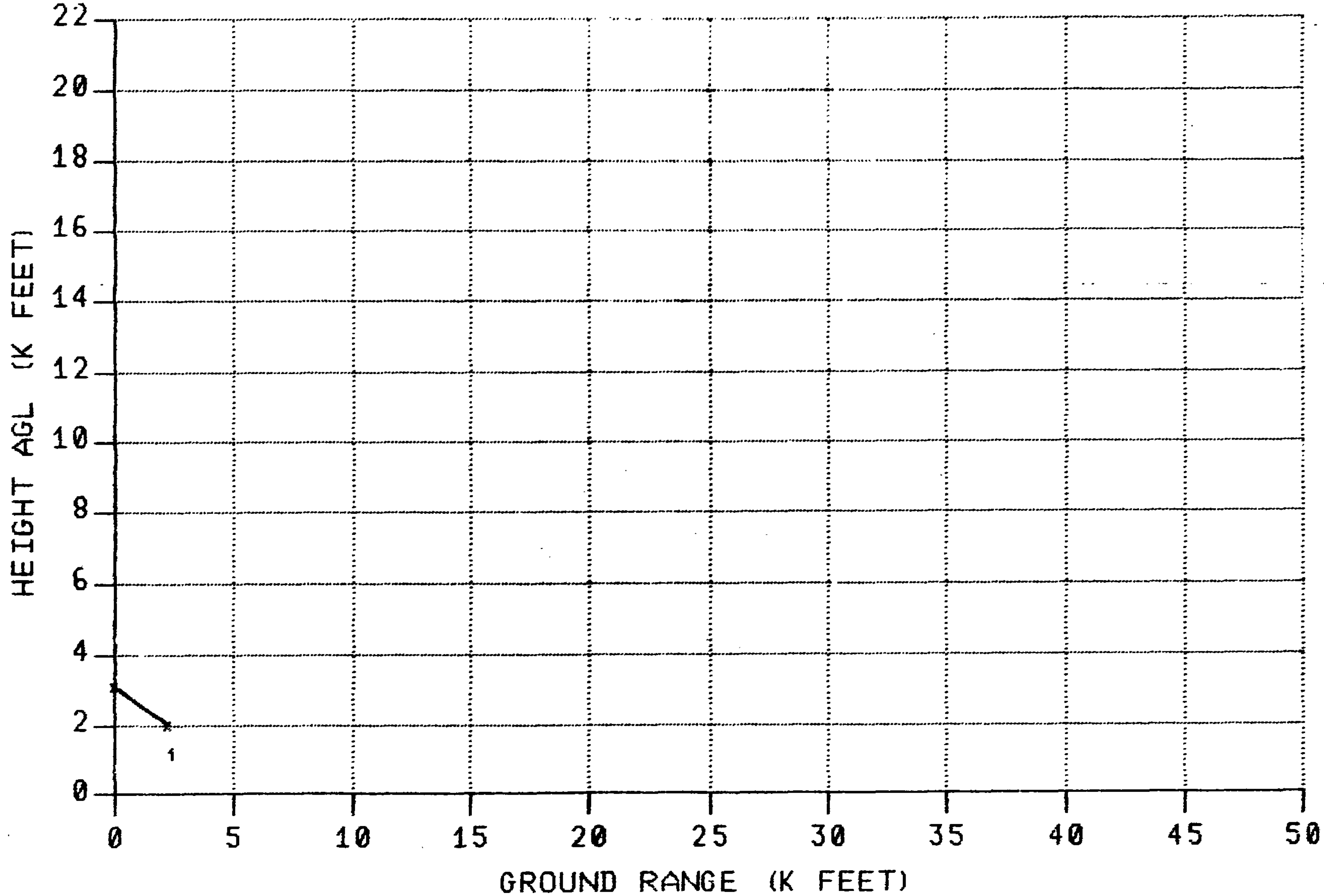
BKGND. REFLECTANCE: 00 TO 14 PERCENT
SOLAR ELEV. ANGLE : 56 TO 90 DEGREE
SURFACE VISIBILITY: 15 MILES (24.1 KM)
MIXING LYR. DEPTH : 3000 FEET



CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

CLOUD COVER: CLR-SCT

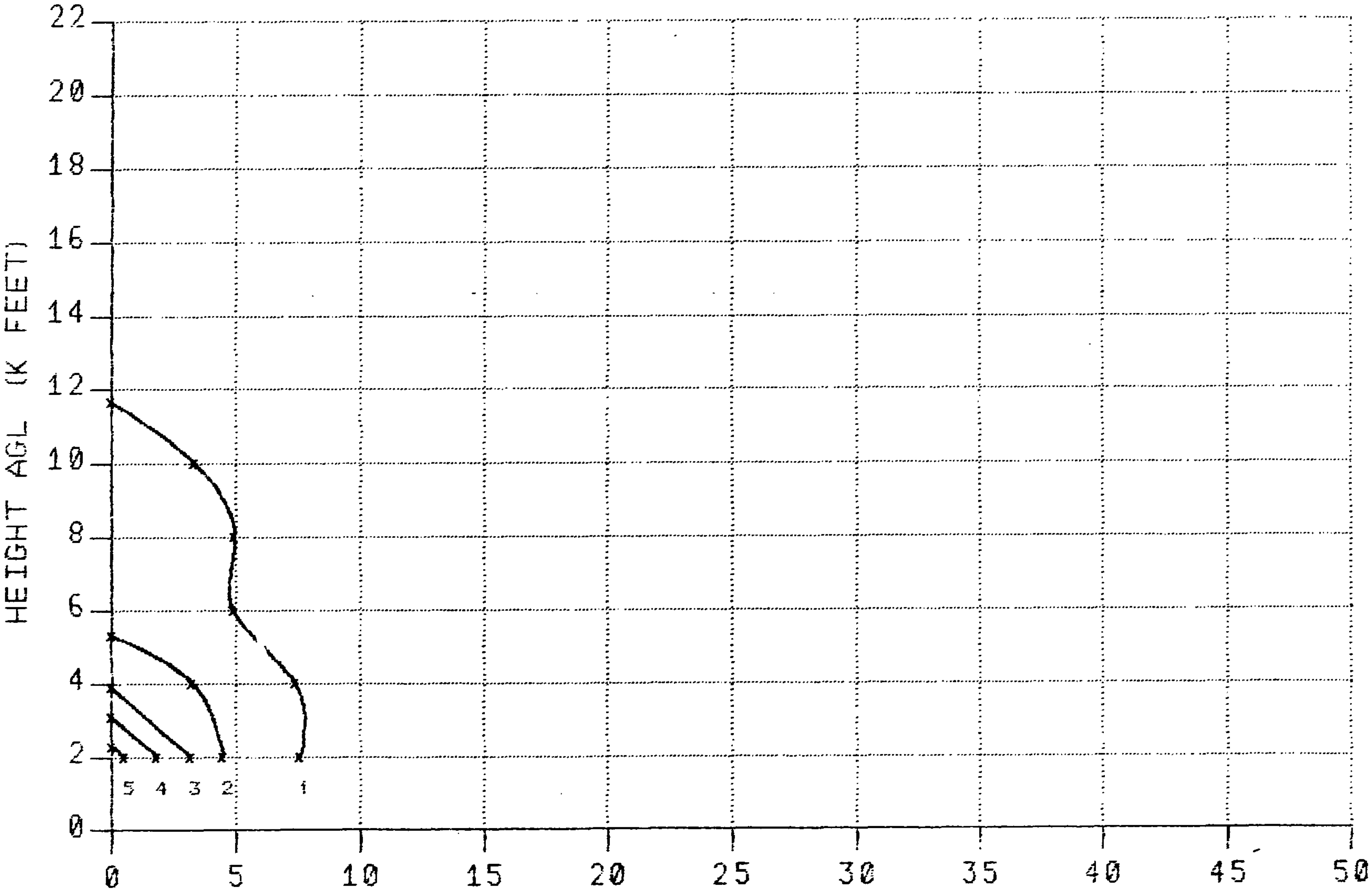
BKGND. REFLECTANCE: 00 TO 14 PERCENT
SOLAR ELEV. ANGLE : 56 TO 90 DEGREE
SURFACE VISIBILITY: 1 MILE (1.6 KM)
MIXING LYR. DEPTH : 6000 FEET



CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

CLOUD COVER: CLR-SCT

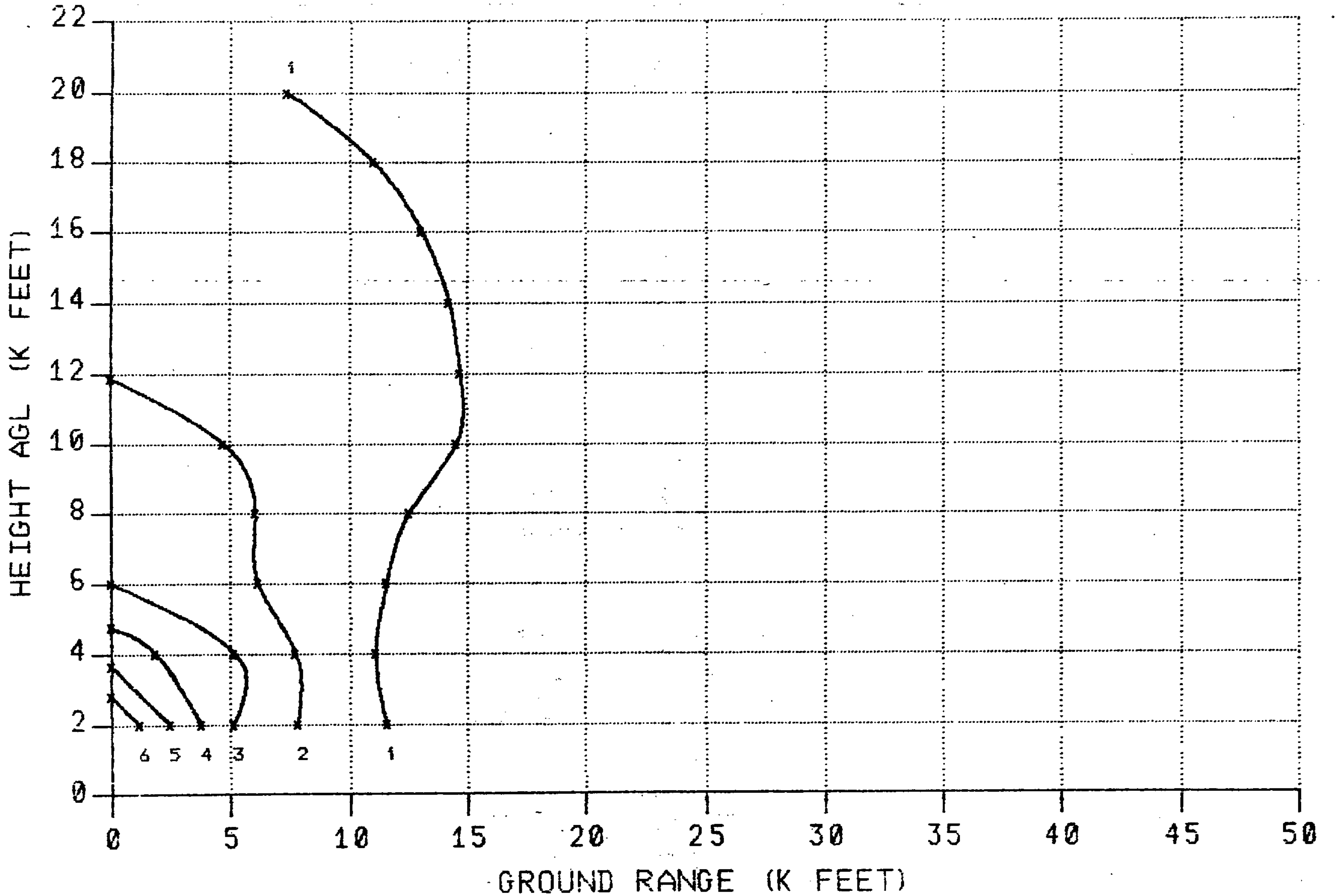
BKGND. REFLECTANCE: 00 TO 14 PERCENT
SOLAR ELEV. ANGLE : 56 TO 90 DEGREE
SURFACE VISIBILITY: 3 MILES (4.8 KM)
MIXING LYR. DEPTH : 6000 FEET



GROUND RANGE (K FEET)
CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

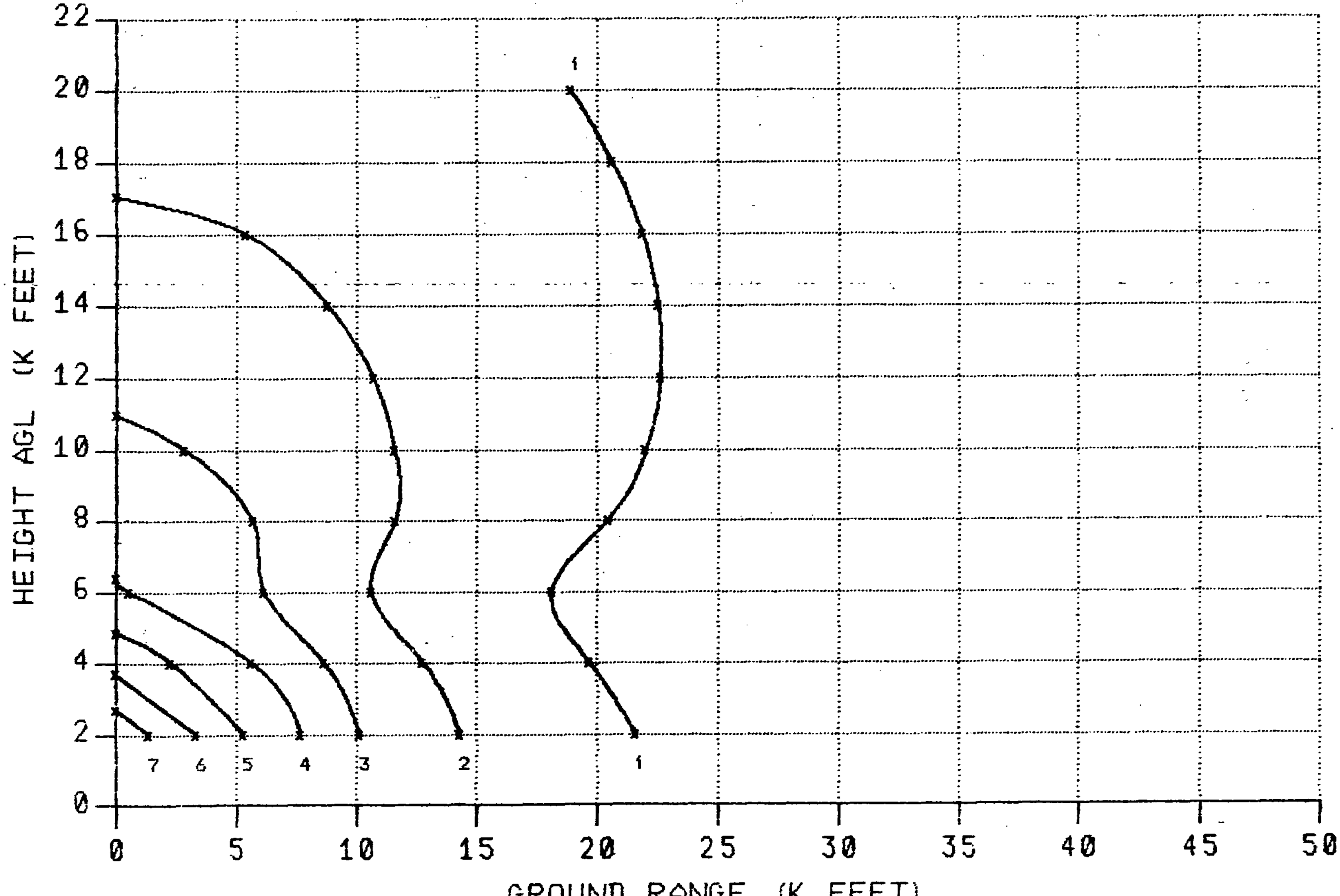
CLOUD COVER: CLR-SCT

BKGND. REFLECTANCE: 00 TO 14 PERCENT
SOLAR ELEV. ANGLE : 56 TO 90 DEGREE
SURFACE VISIBILITY: 5 MILES (8.0 KM)
MIXING LYR. DEPTH : 6000 FEET



CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

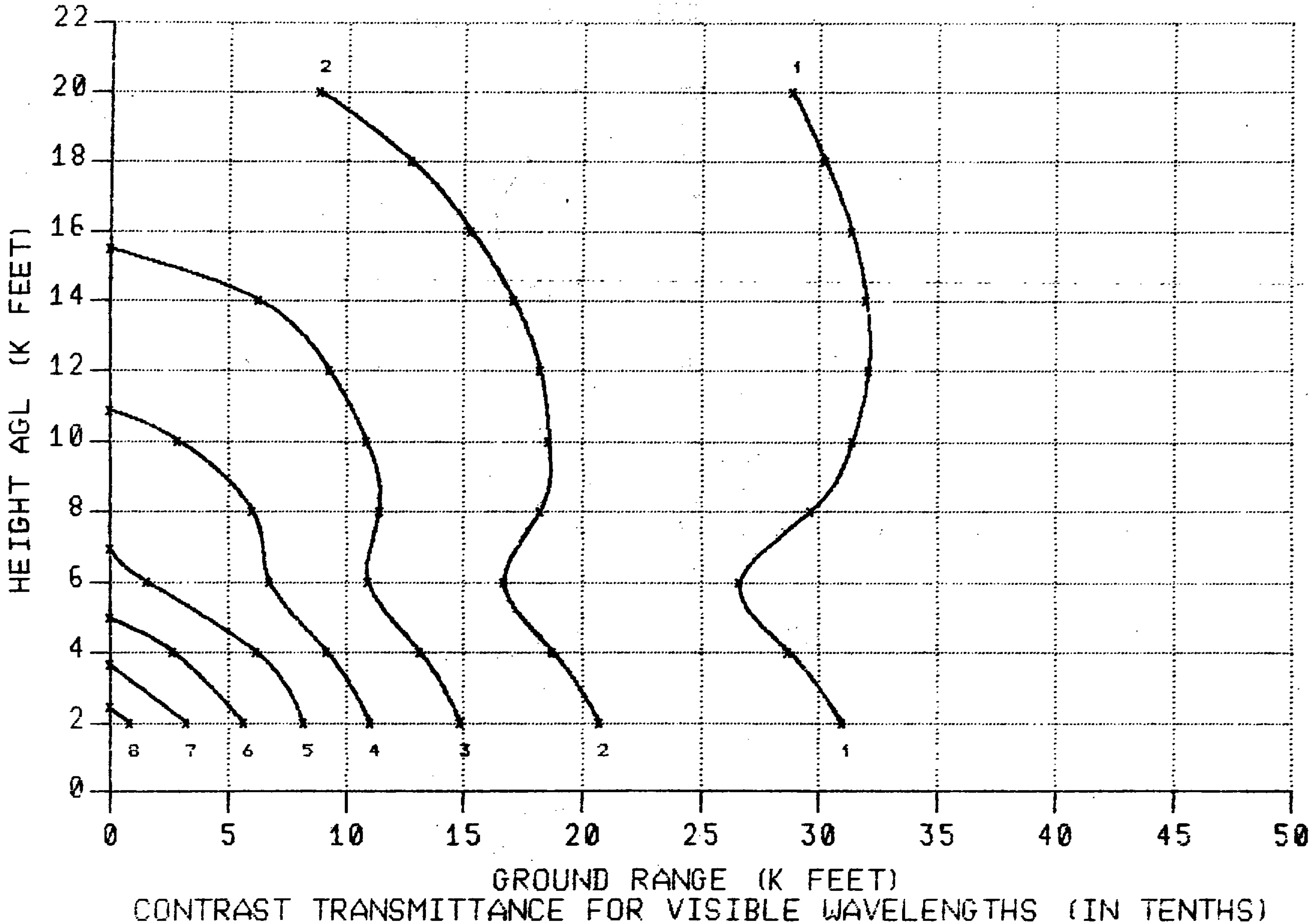
CLOUD COVER: CLR-SCT BKGND. REFLECTANCE: 00 TO 14 PERCENT
SOLAR ELEV. ANGLE : 56 TO 90 DEGREE
SURFACE VISIBILITY: 7 MILES (11.3 KM)
MIXING LYR. DEPTH : 6000 FEET



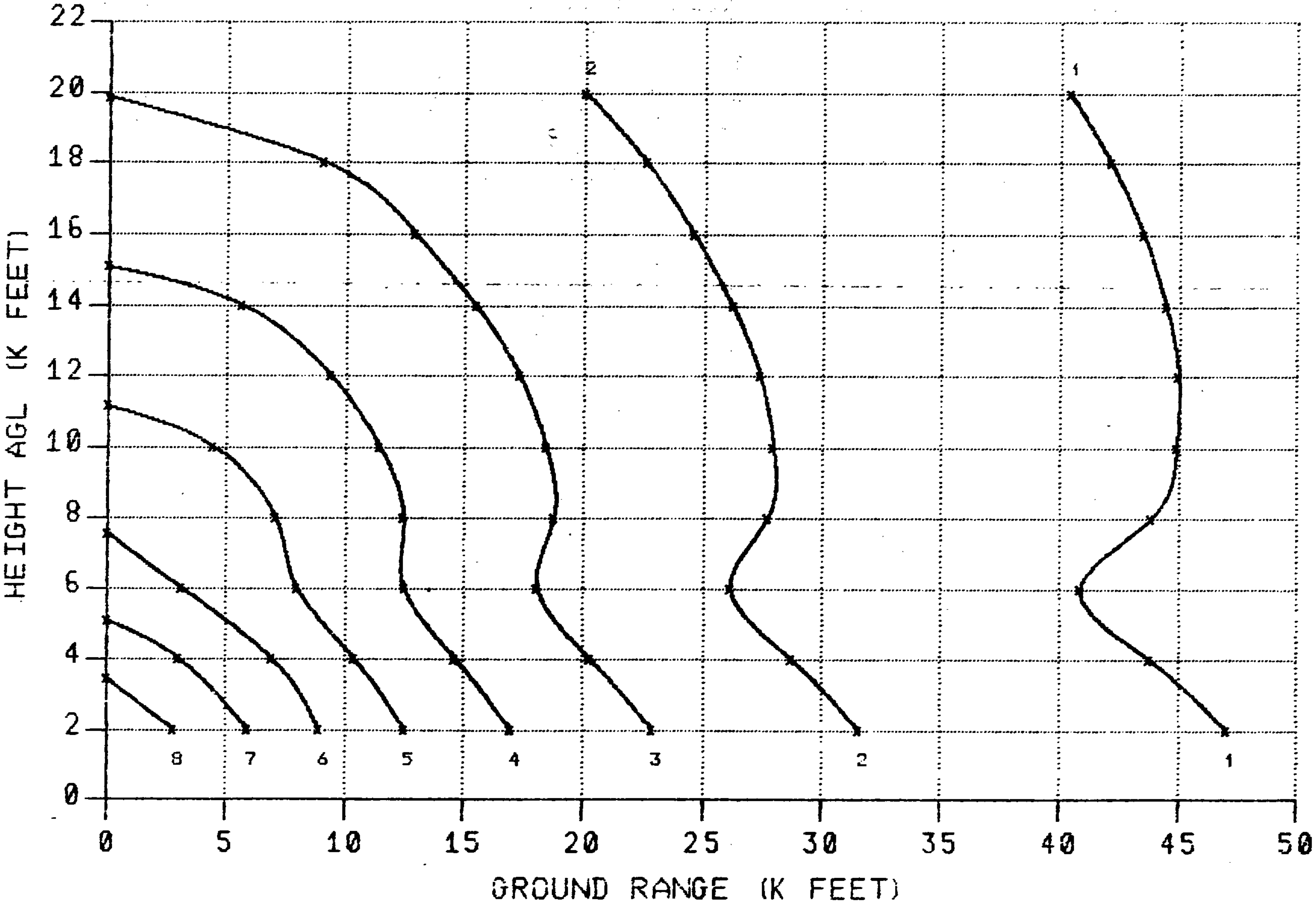
CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

CLOUD COVER: CLR-SCT

BKGND. REFLECTANCE: 00 TO 14 PERCENT
SOLAR ELEV. ANGLE : 56 TO 90 DEGREE
SURFACE VISIBILITY: 10 MILES (16.1 KM)
MIXING LYR. DEPTH : 6000 FEET

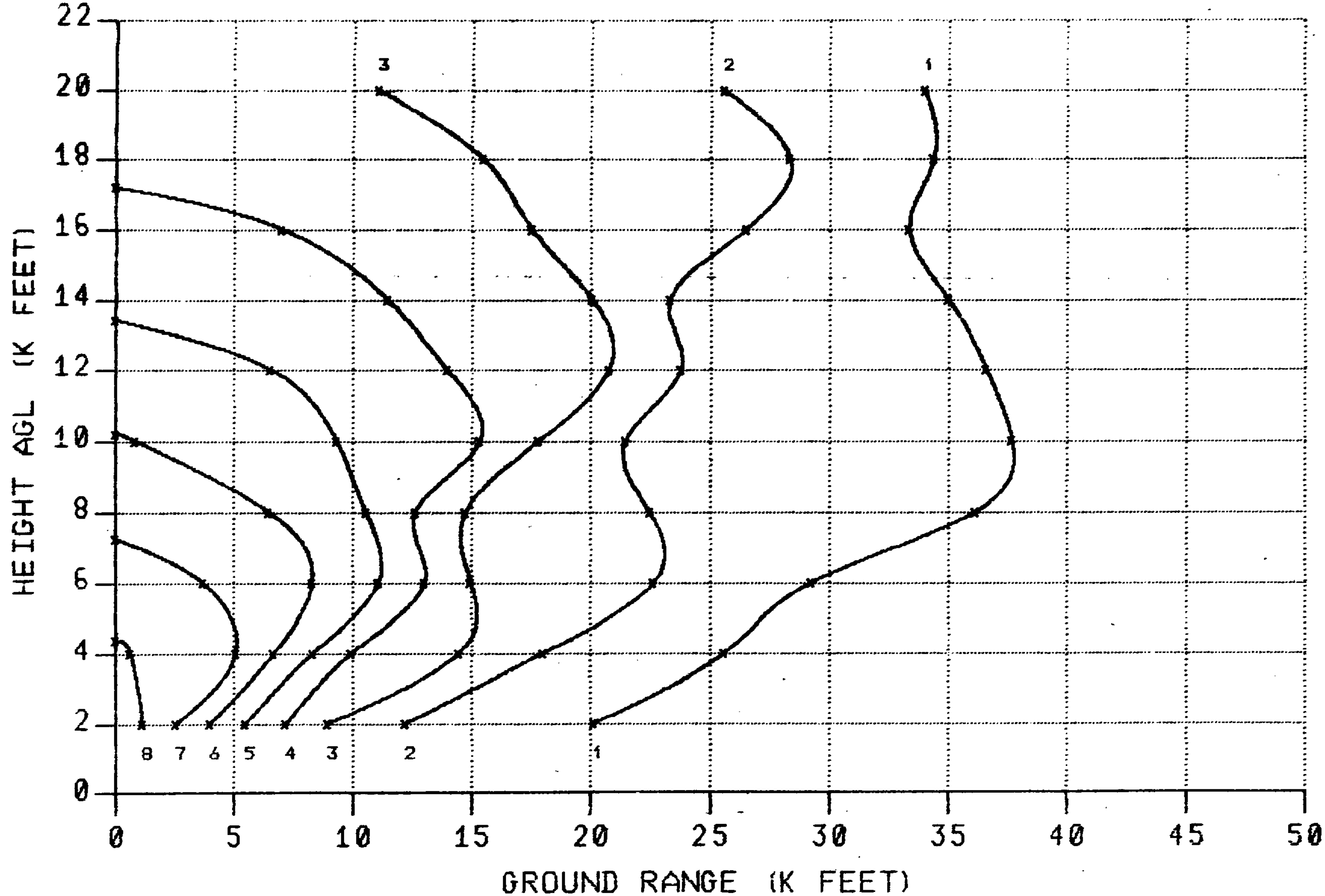


CLOUD COVER: CLR-SCT BKGND. REFLECTANCE: 00 TO 14 PERCENT
SOLAR ELEV. ANGLE : 56 TO 90 DEGREE
SURFACE VISIBILITY: 15 MILES (24.1 KM)
MIXING LYR. DEPTH : 6000 FEET



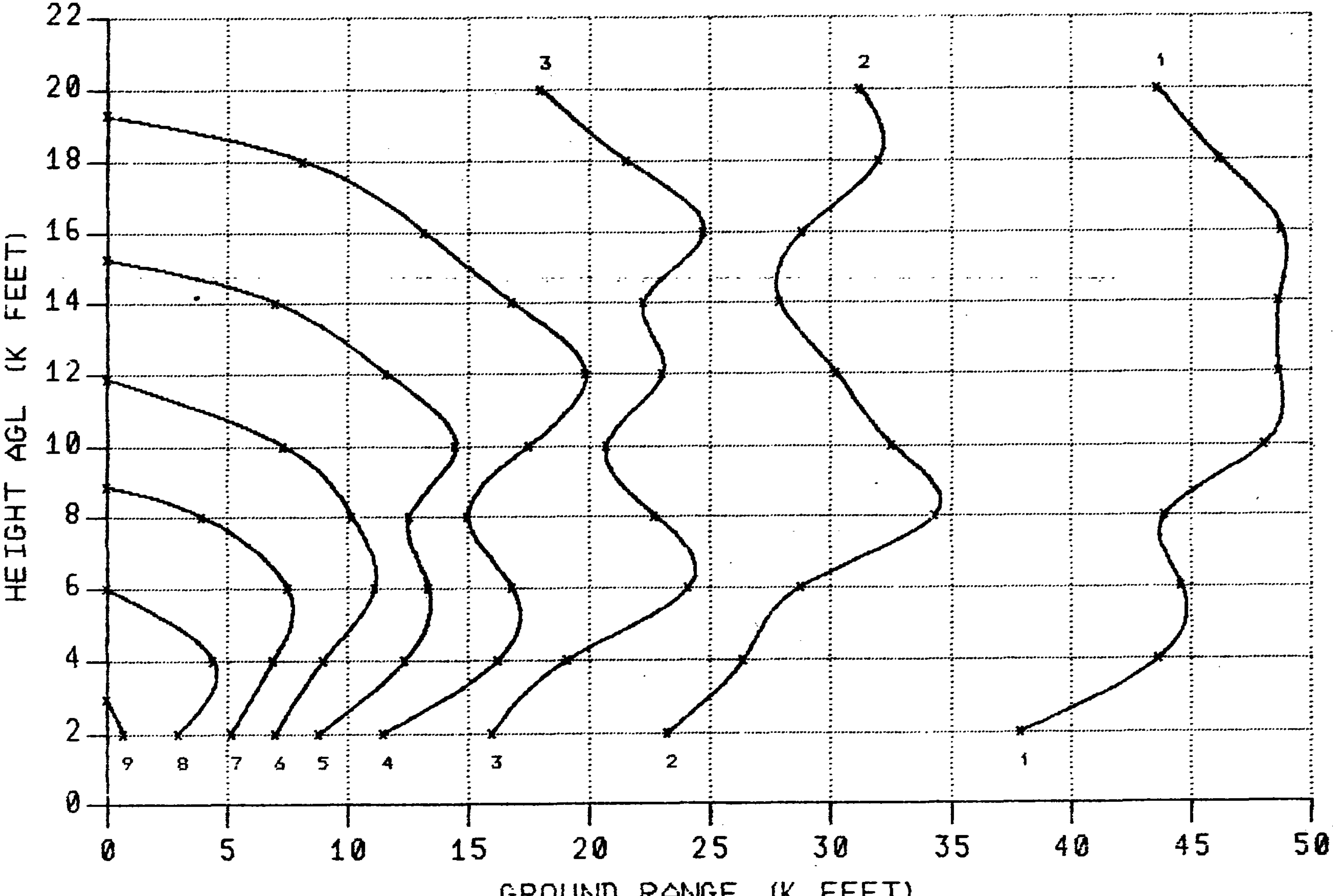
CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

CLOUD COVER: CLR-SCT BKGND. REFLECTANCE: 15 TO 49 PERCENT
SOLAR ELEV. ANGLE : 0 TO 10 DEGREE
SURFACE VISIBILITY: 1 MILE (1.6 KM)
MIXING LYR. DEPTH : BELOW 50 FEET



CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

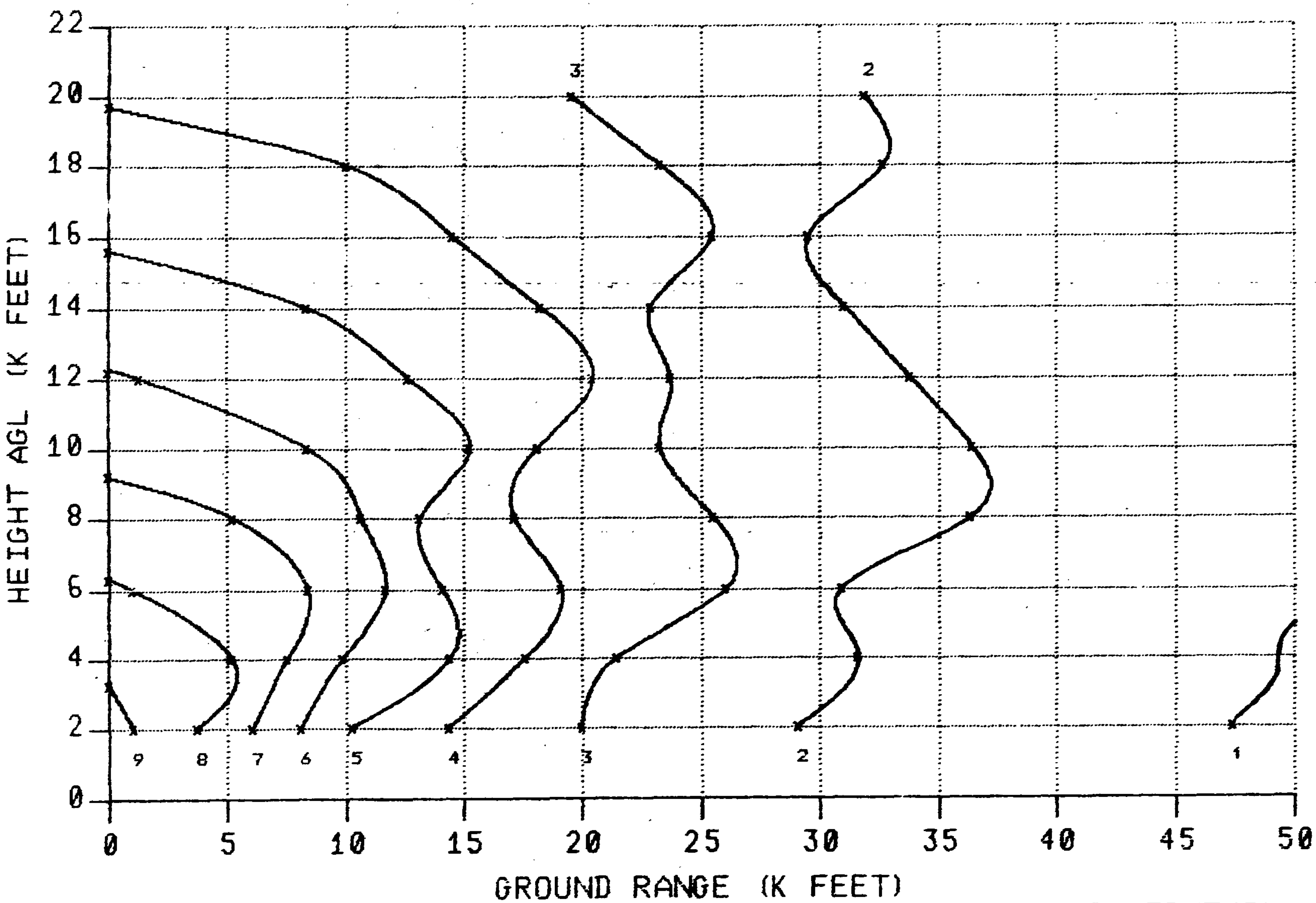
CLOUD COVER: CLR-SCT BKGND. REFLECTANCE: 15 TO 49 PERCENT
SOLAR ELEV. ANGLE : 0 TO 10 DEGREE
SURFACE VISIBILITY: 3 MILES (4.8 KM)
MIXING LYR. DEPTH : BELOW 50 FEET



CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

CLOUD COVER: CLR-SCT

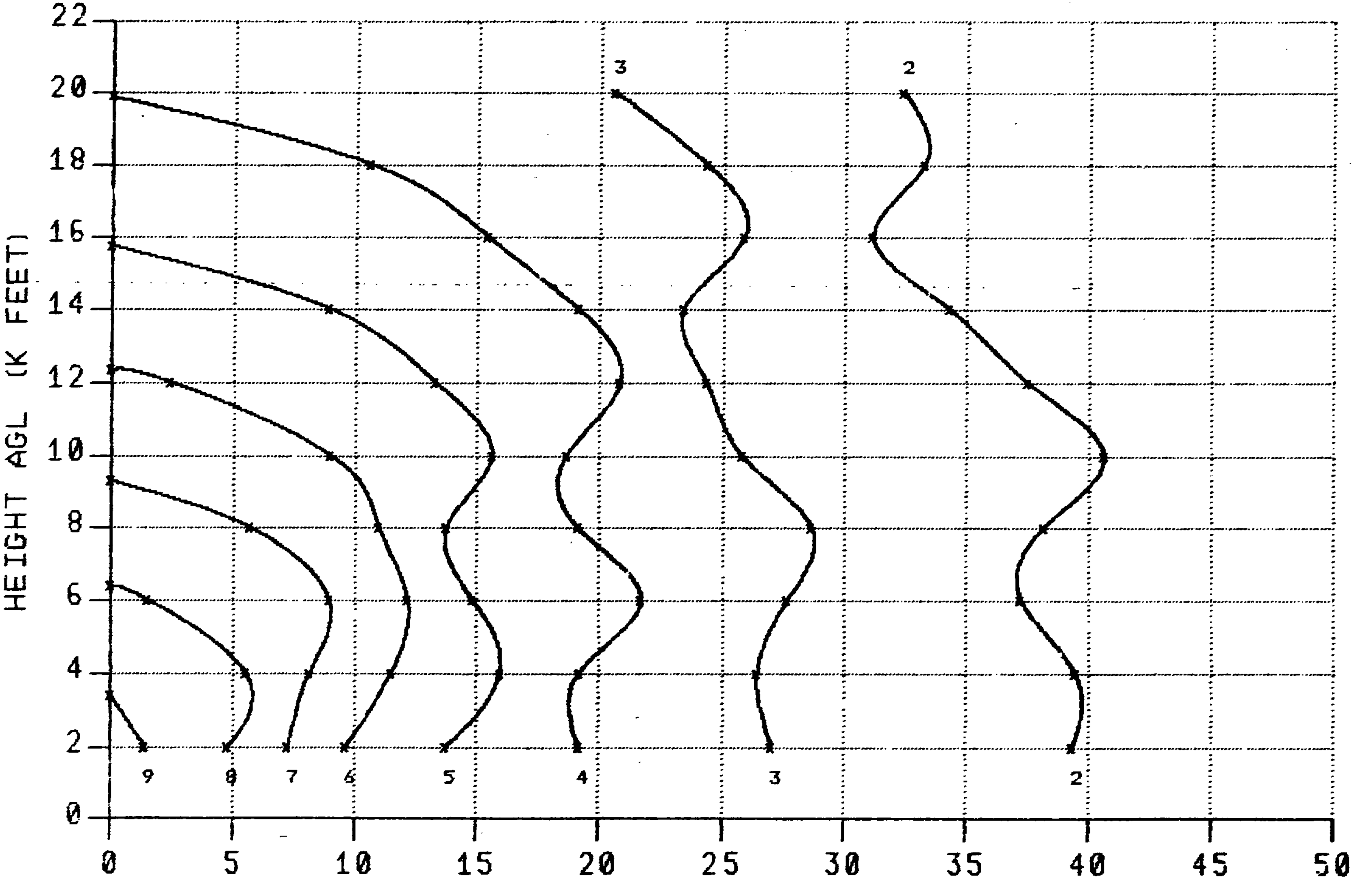
BKGND. REFLECTANCE: 15 TO 49 PERCENT
SOLAR ELEV. ANGLE : 0 TO 10 DEGREE
SURFACE VISIBILITY: 5 MILES (8.0 KM)
MIXING LYR. DEPTH : BELOW 50 FEET



CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

CLOUD COVER: CLR-SCT

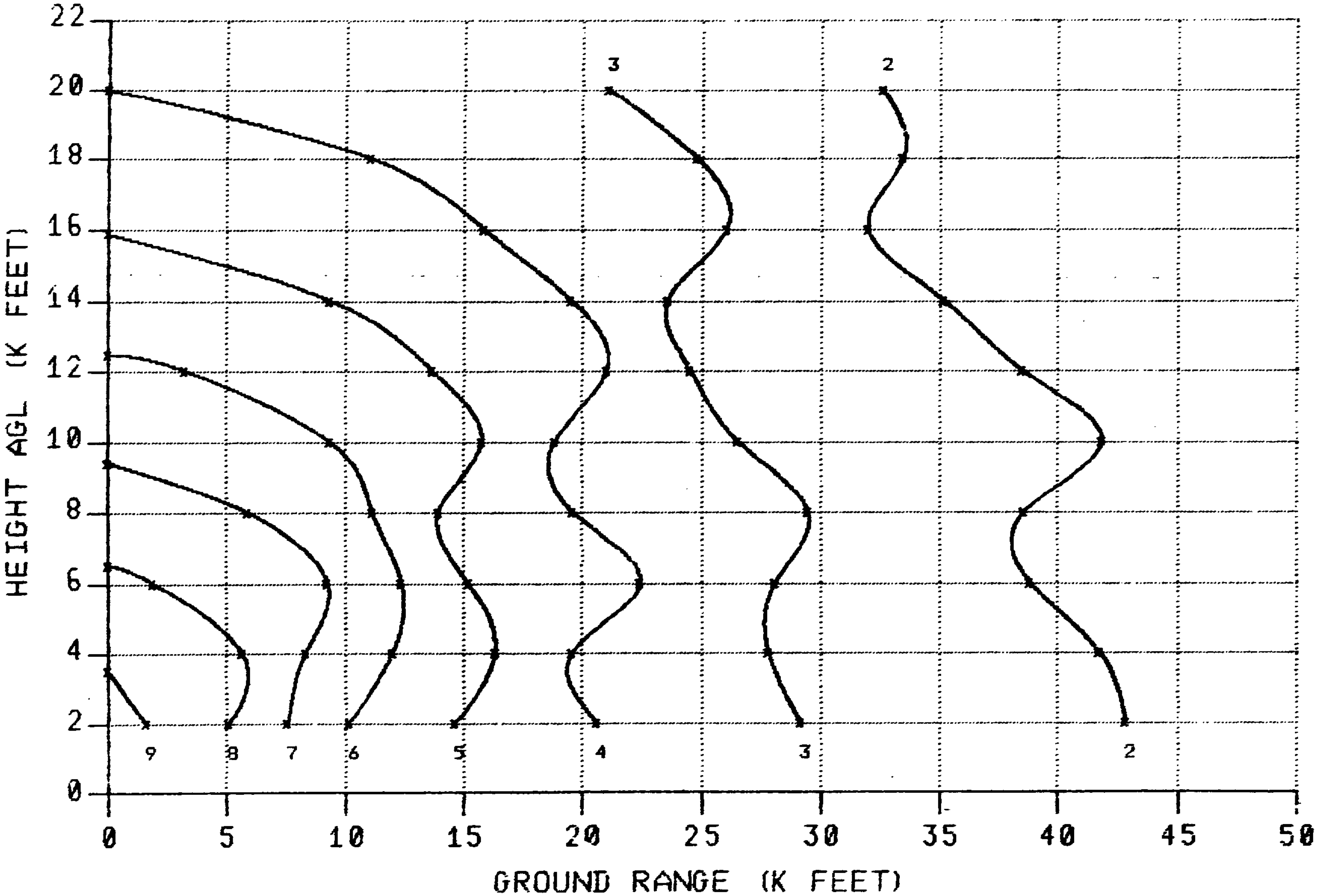
BKGND. REFLECTANCE: 15 TO 49 PERCENT
SOLAR ELEV. ANGLE : 0 TO 10 DEGREE
SURFACE VISIBILITY: 7 MILES (11.3 KM)
MIXING LYR. DEPTH : BELOW 50 FEET



CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

CLOUD COVER: CLR-SCT

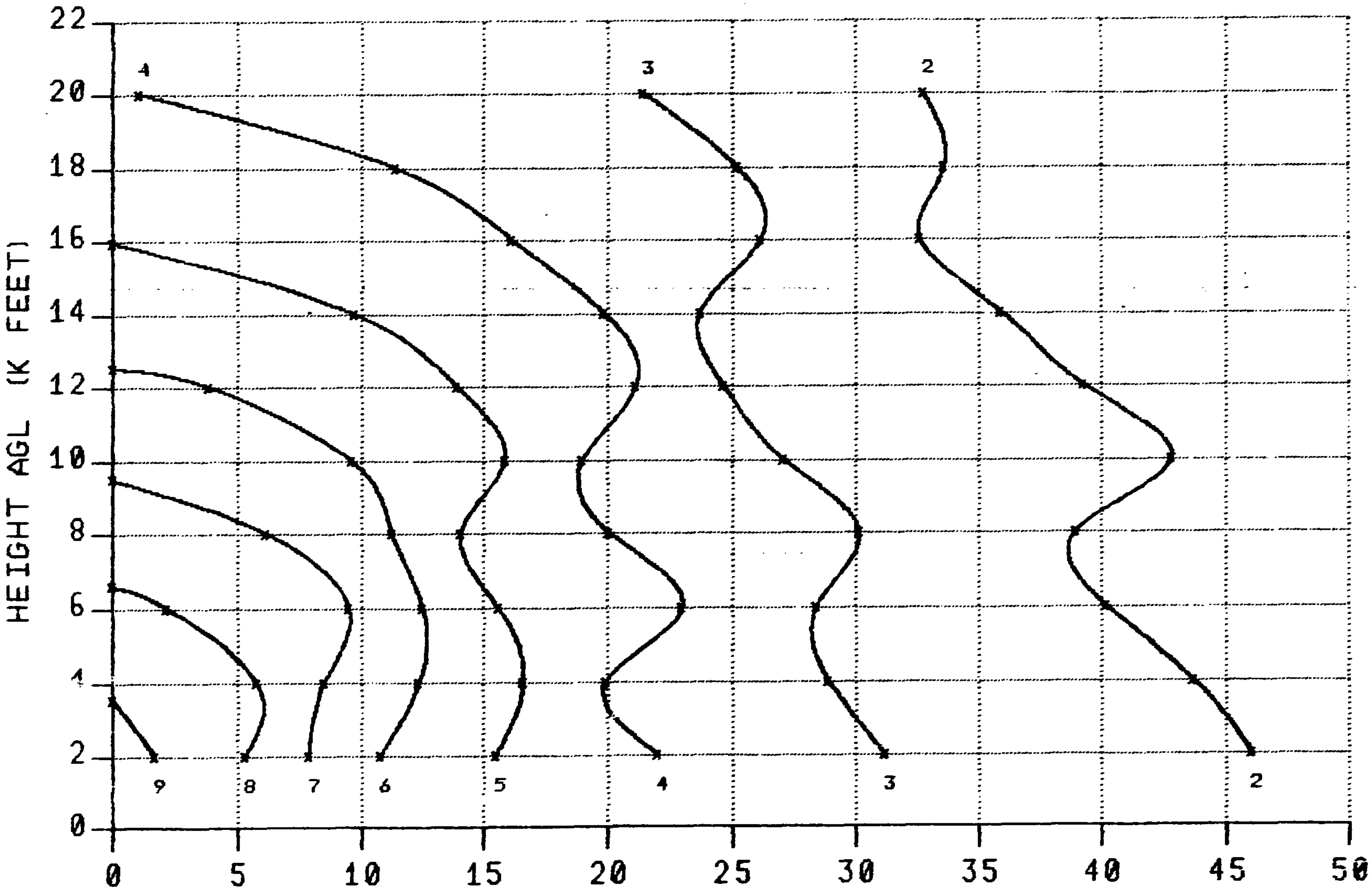
BKGND. REFLECTANCE: 15 TO 49 PERCENT
SOLAR ELEV. ANGLE : 0 TO 10 DEGREE
SURFACE VISIBILITY: 10 MILES (16.1 KM)
MIXING LYR. DEPTH : BELOW 50 FEET



CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

CLOUD COVER: CLR-SCT

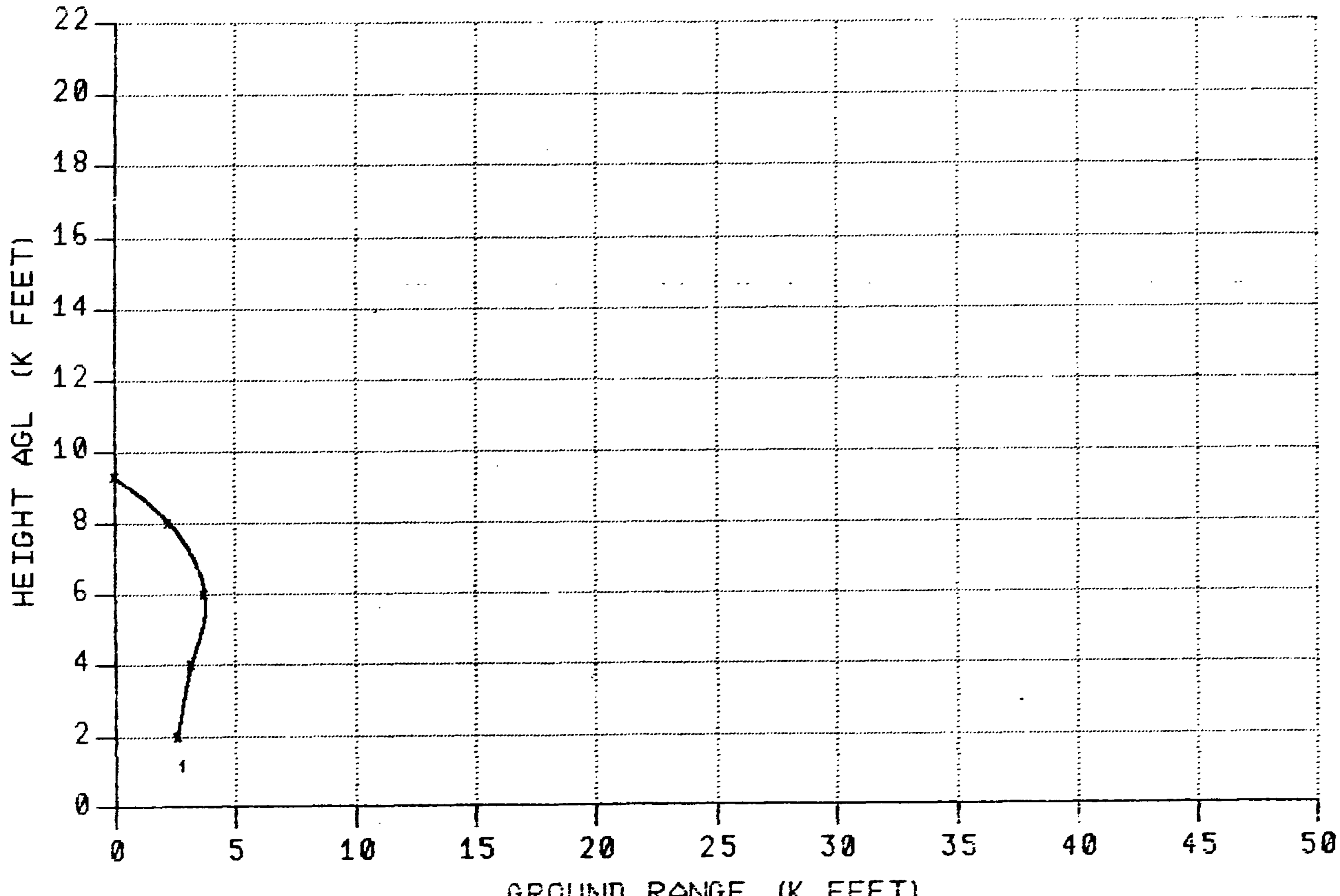
BKGND. REFLECTANCE: 15 TO 49 PERCENT
SOLAR ELEV. ANGLE : 0 TO 10 DEGREE
SURFACE VISIBILITY: 15 MILES (24.1 KM)
MIXING LYR. DEPTH : BELOW 50 FEET



GROUND RANGE (K FEET)
CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

CLOUD COVER: CLR-SCT

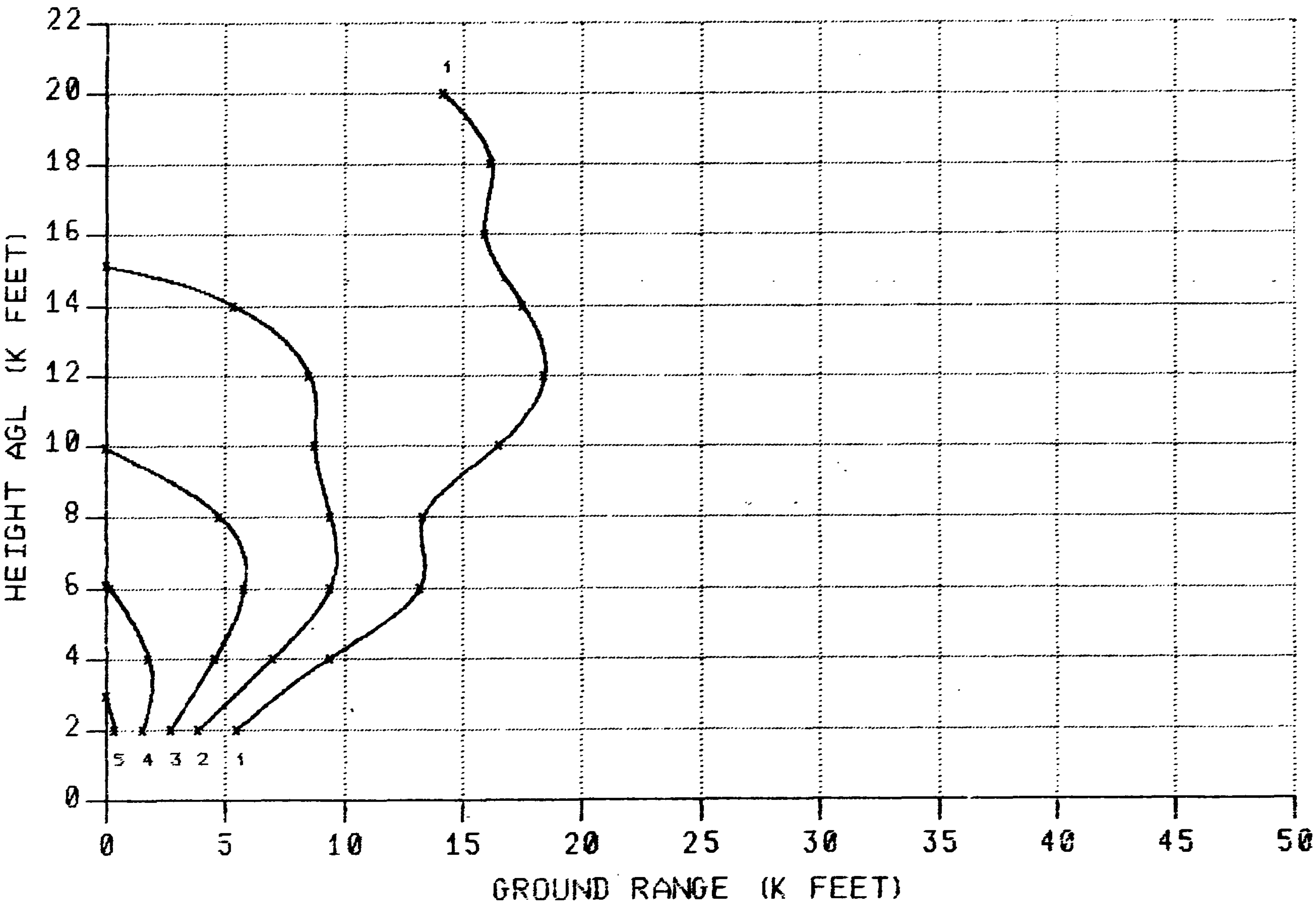
BKGND. REFLECTANCE: 15 TO 49 PERCENT
SOLAR ELEV. ANGLE : 0 TO 10 DEGREE
SURFACE VISIBILITY: 1 MILE (1.6 KM)
MIXING LYR. DEPTH : 1500 FEET



CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

CLOUD COVER: CLR-SCT

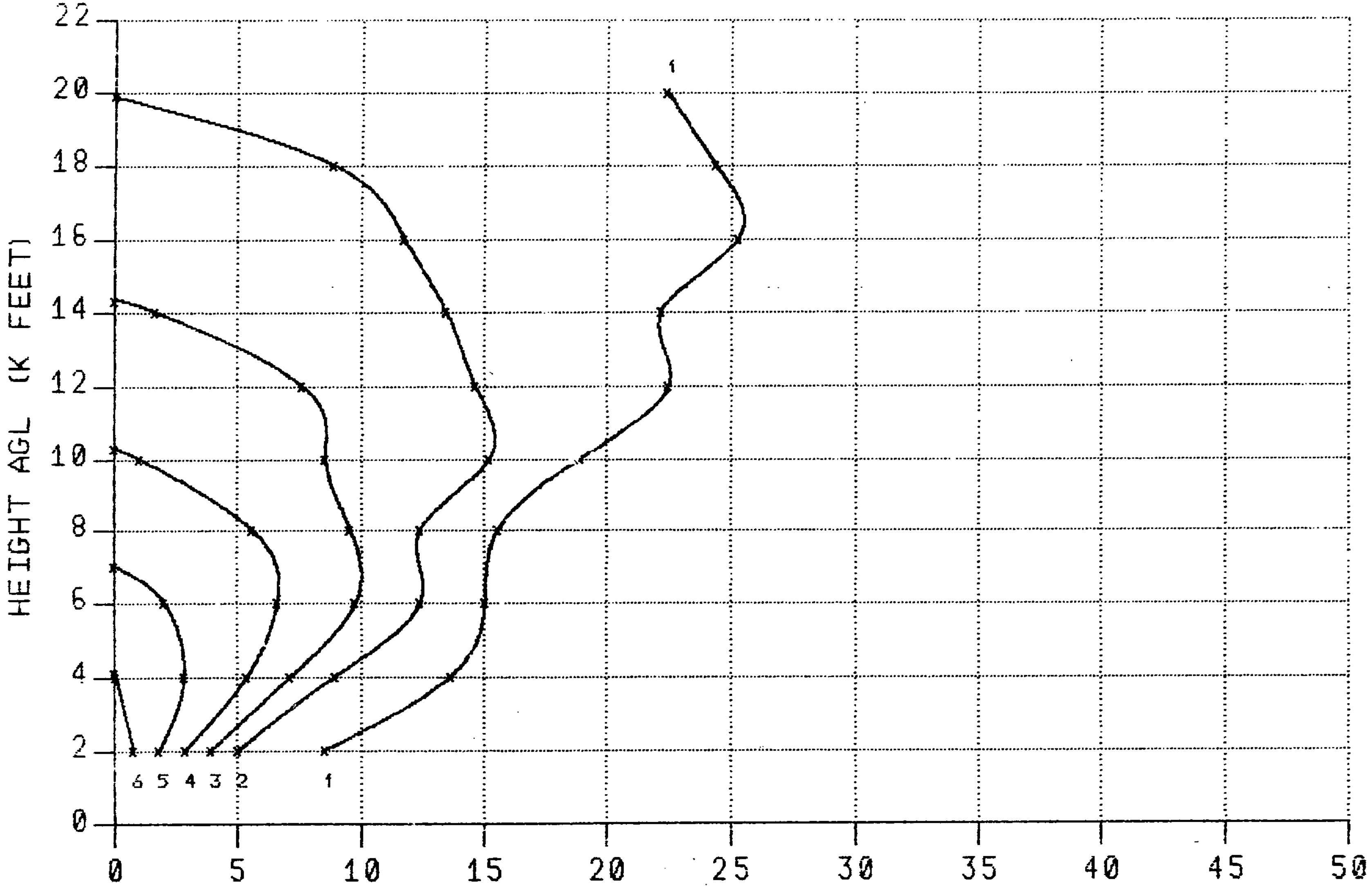
BKGND. REFLECTANCE: 15 TO 49 PERCENT
SOLAR ELEV. ANGLE : 0 TO 10 DEGREE
SURFACE VISIBILITY: 3 MILES (4.8 KM)
MIXING LYR. DEPTH : 1500 FEET



CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

CLOUD COVER: CLR-SCT

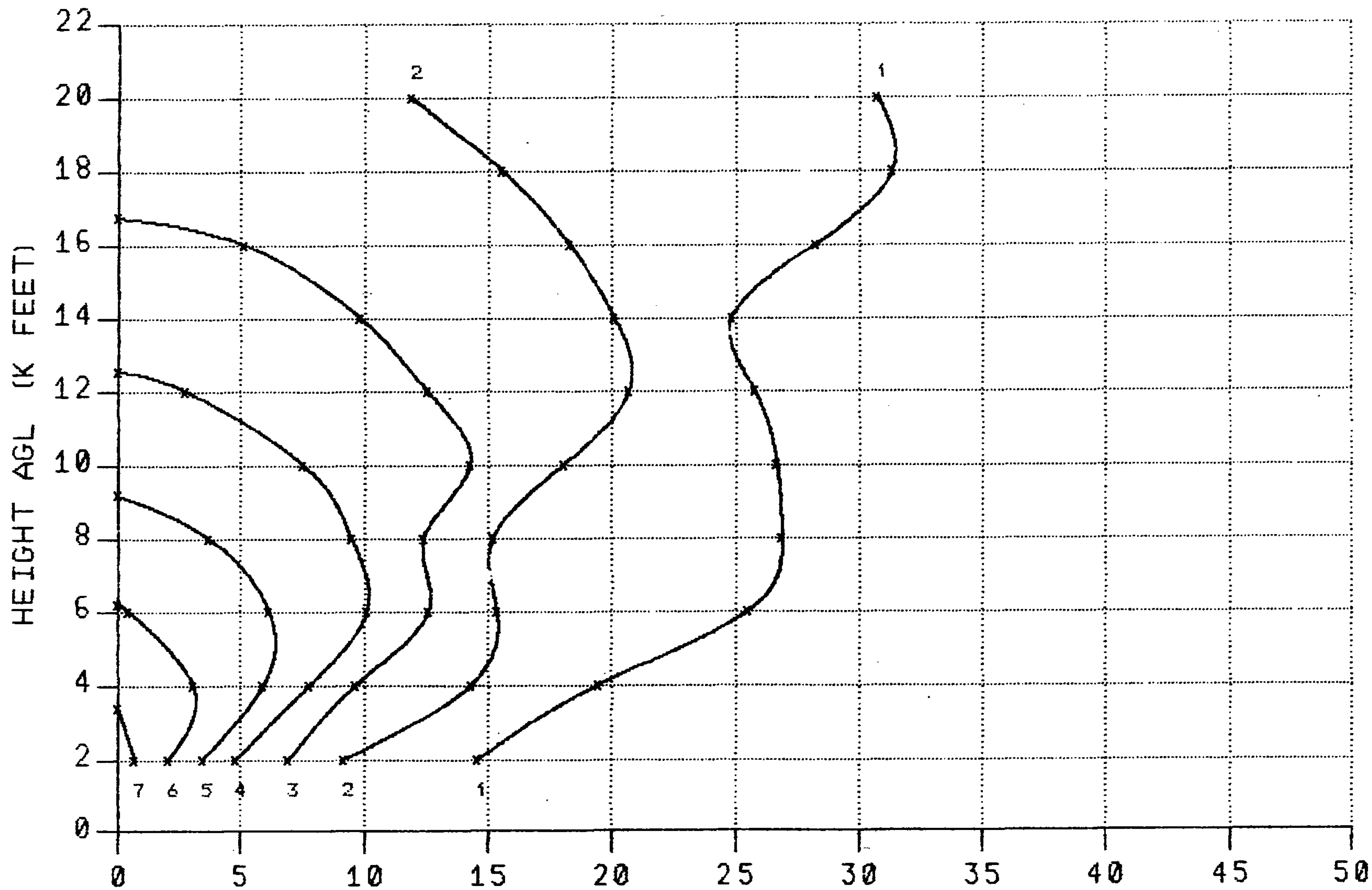
BKGND. REFLECTANCE: 15 TO 49 PERCENT
SOLAR ELEV. ANGLE : 0 TO 10 DEGREE
SURFACE VISIBILITY: 5 MILES (8.0 KM)
MIXING LYR. DEPTH : 1500 FEET



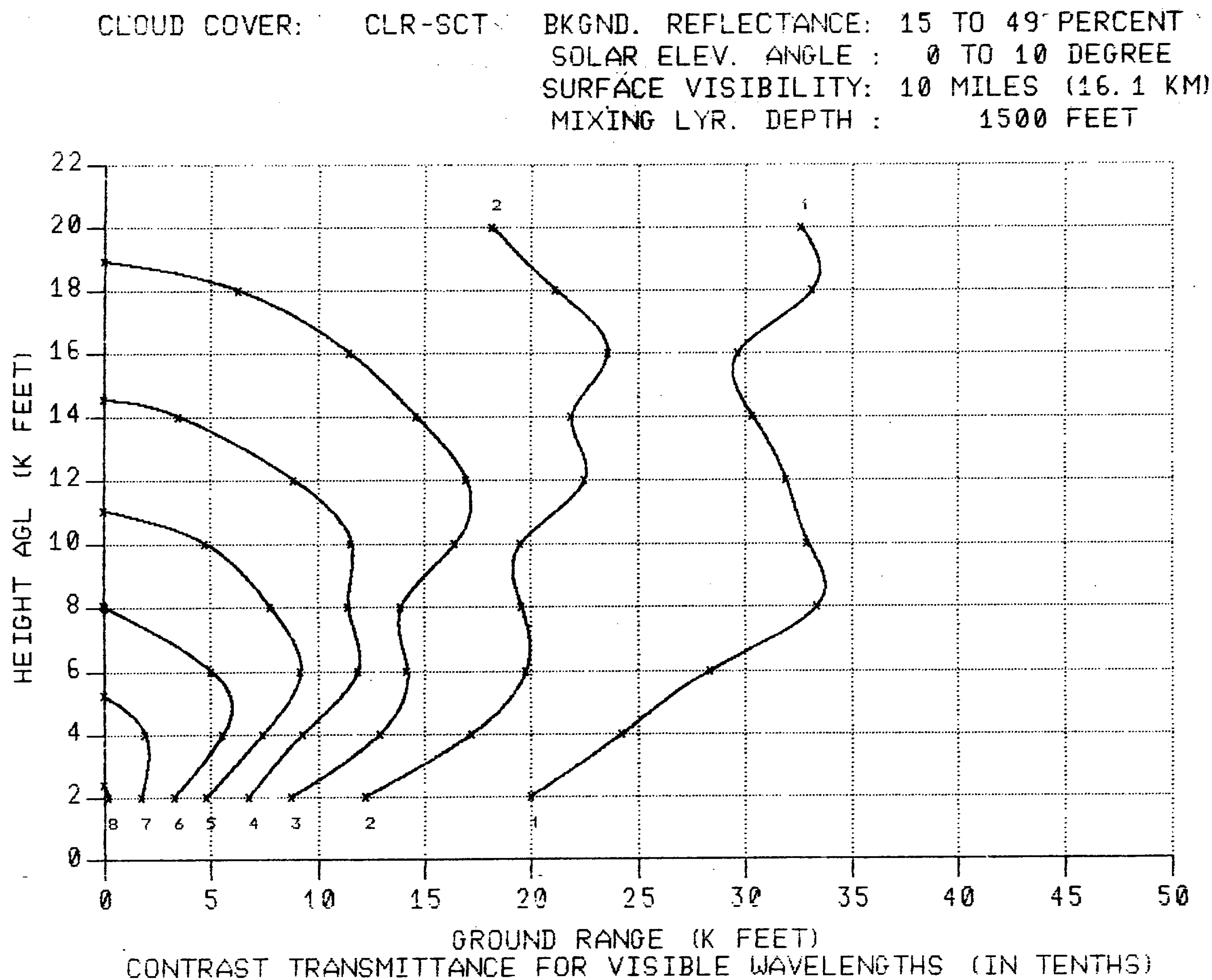
CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

CLOUD COVER: CLR-SCT

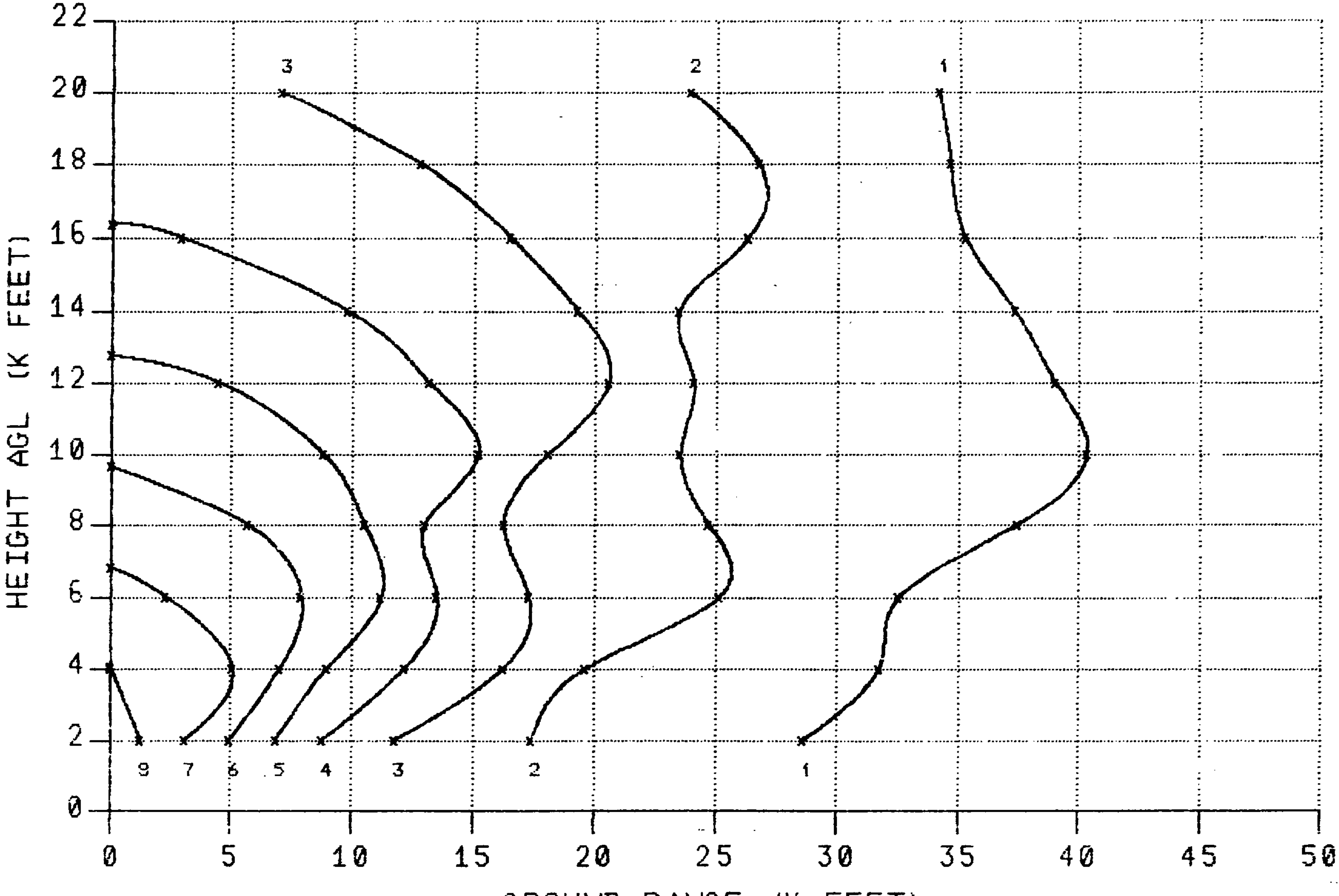
BKGND. REFLECTANCE: 15 TO 49 PERCENT
SOLAR ELEV. ANGLE : 0 TO 10 DEGREE
SURFACE VISIBILITY: 7 MILES (11.3 KM)
MIXING LYR. DEPTH : 1500 FEET



GROUND RANGE (K FEET)
CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)


CLOUD COVER: CLR-SCT
BKGND. REFLECTANCE: 15 TO 49 PERCENT
SOLAR ELEV. ANGLE : 0 TO 10 DEGREE
SURFACE VISIBILITY: 10 MILES (16.1 KM)
MIXING LYR. DEPTH : 1500 FEET
HEIGHT AGL (K FEET)
22
20
18
16
14
12
10
8
6
4
2
0
0
5
10
15
20
25
30
35
40
45
50
8
7
6
5
4
3
2
1
2
1
GROUND RANGE (K FEET)
CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

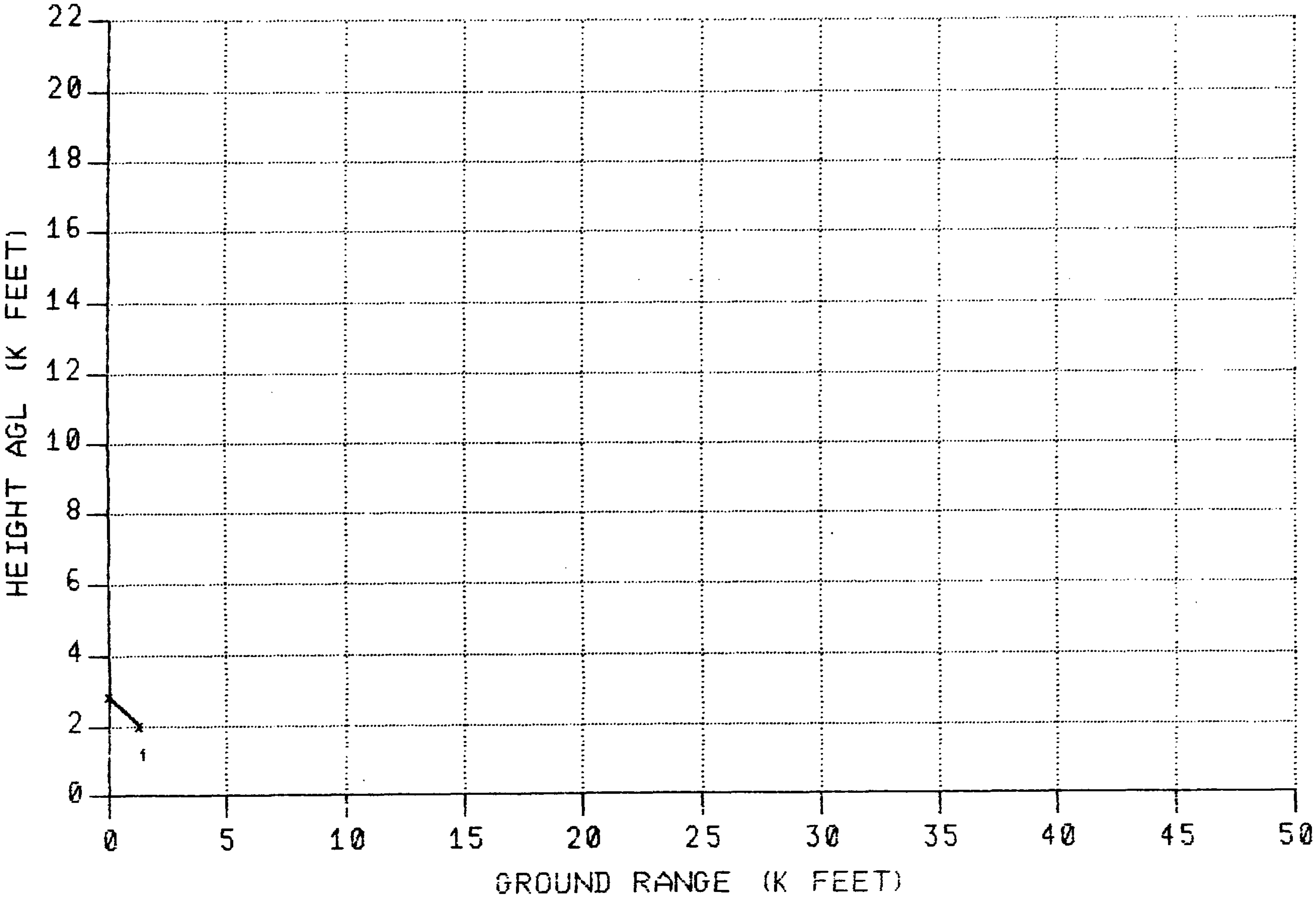
CLOUD COVER: CLR-SCT BKGND. REFLECTANCE: 15 TO 49 PERCENT
SOLAR ELEV. ANGLE : 0 TO 10 DEGREE
SURFACE VISIBILITY: 15 MILES (24.1 KM)
MIXING LYR. DEPTH : 1500 FEET



CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

CLOUD COVER: CLR-SCT

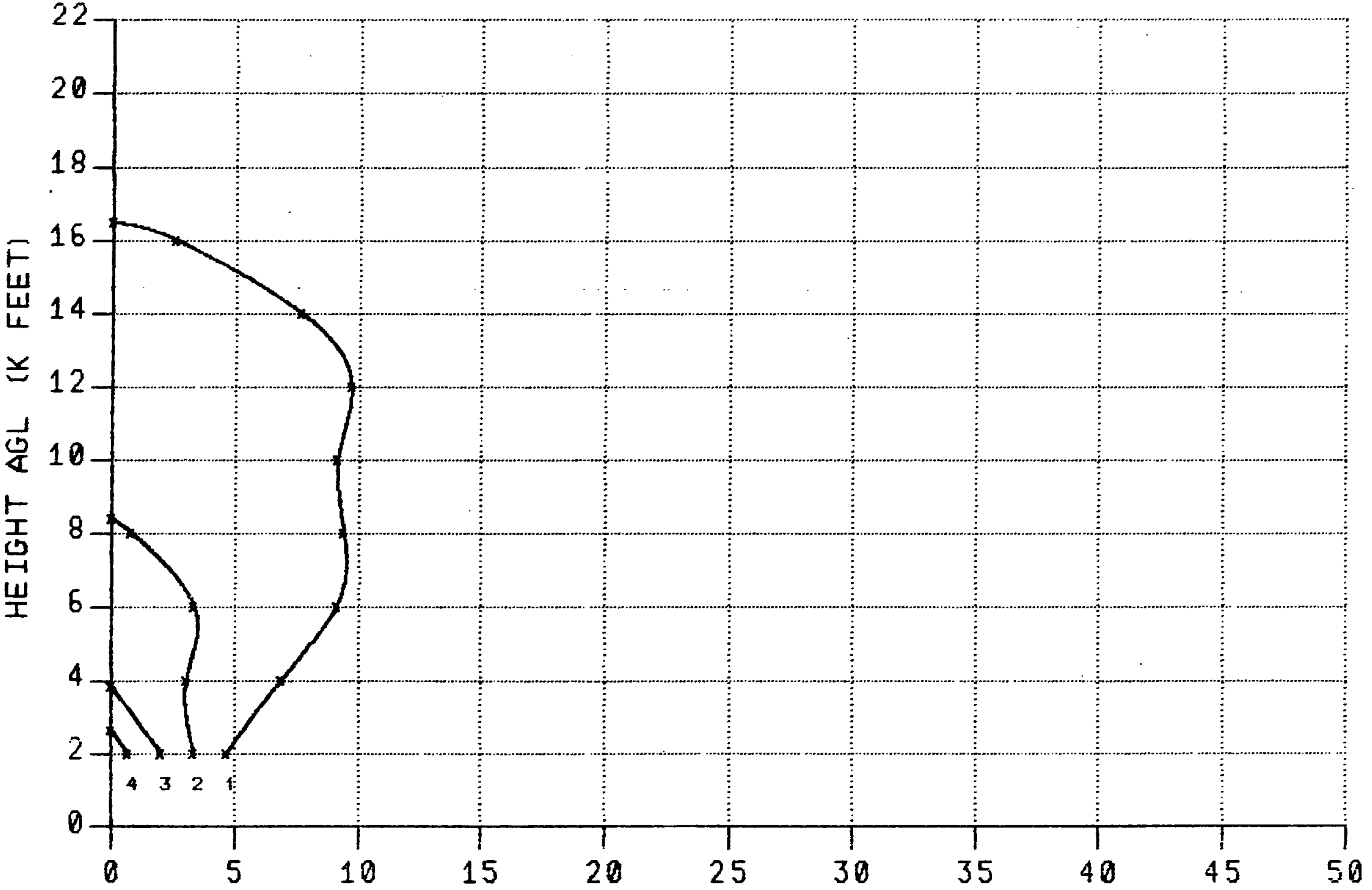
BKGND. REFLECTANCE: 15 TO 49 PERCENT
SOLAR ELEV. ANGLE : 0 TO 10 DEGREE
SURFACE VISIBILITY: 1 MILE (1.6 KM)
MIXING LYR. DEPTH : 3000 FEET



CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

CLOUD COVER: CLR-SCT

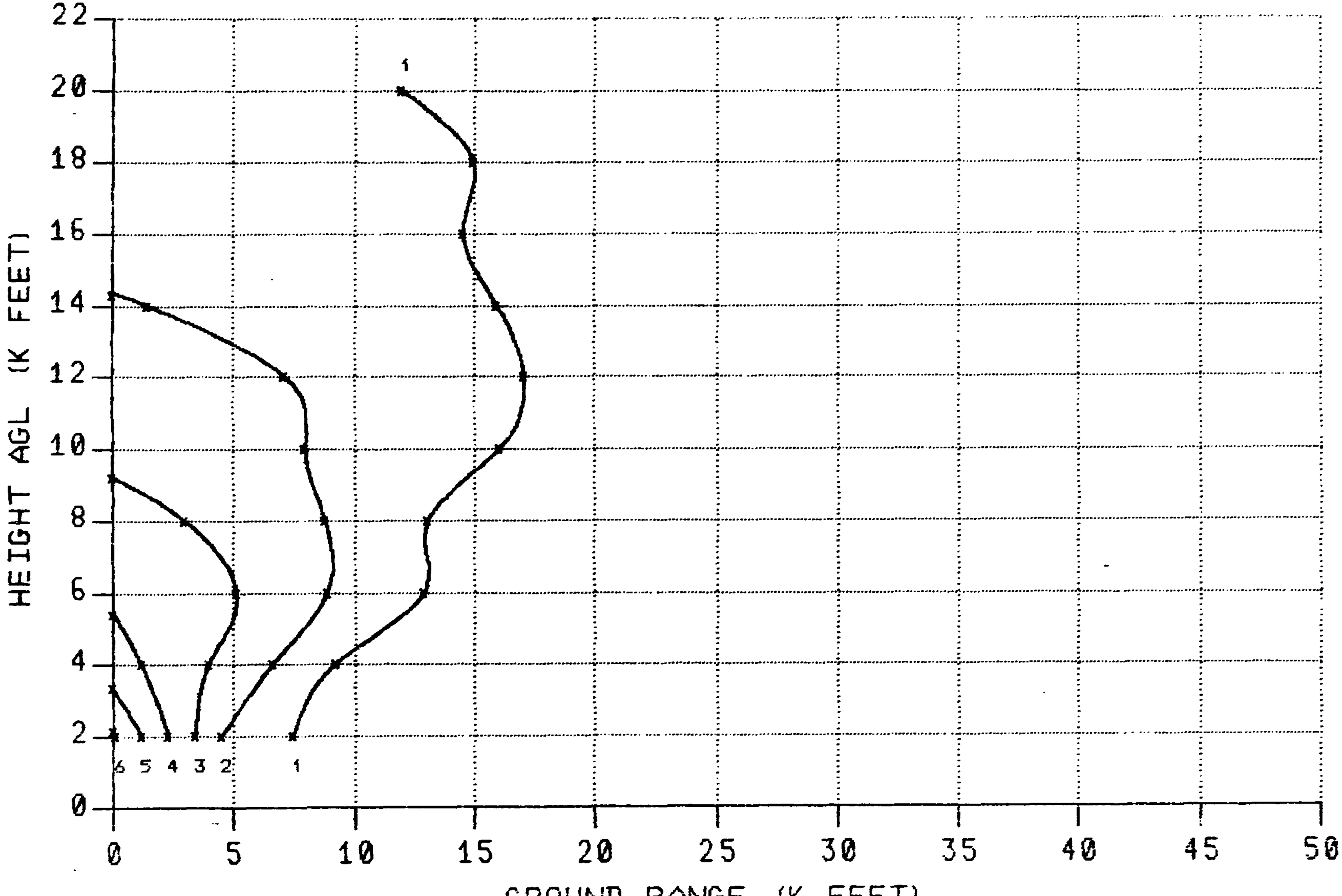
BKGND. REFLECTANCE: 15 TO 49 PERCENT
SOLAR ELEV. ANGLE : 0 TO 10 DEGREE
SURFACE VISIBILITY: 3 MILES (4.8 KM)
MIXING LYR. DEPTH : 3000 FEET



GROUND RANGE (K FEET)
CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

CLOUD COVER: CLR-SCT

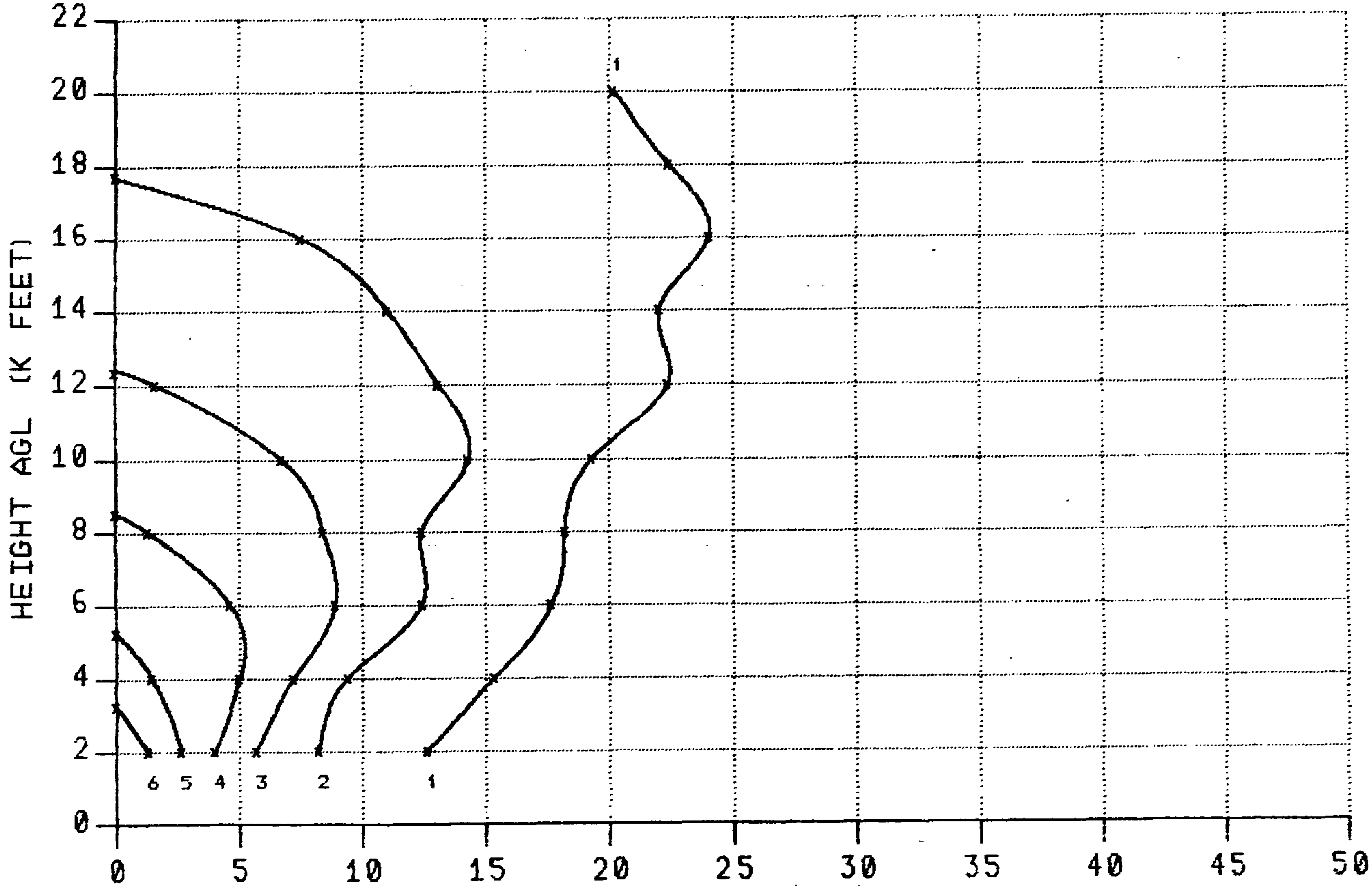
BKGND. REFLECTANCE: 15 TO 49 PERCENT
SOLAR ELEV. ANGLE : 0 TO 10 DEGREE
SURFACE VISIBILITY: 5 MILES (8.0 KM)
MIXING LYR. DEPTH : 3000 FEET



CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

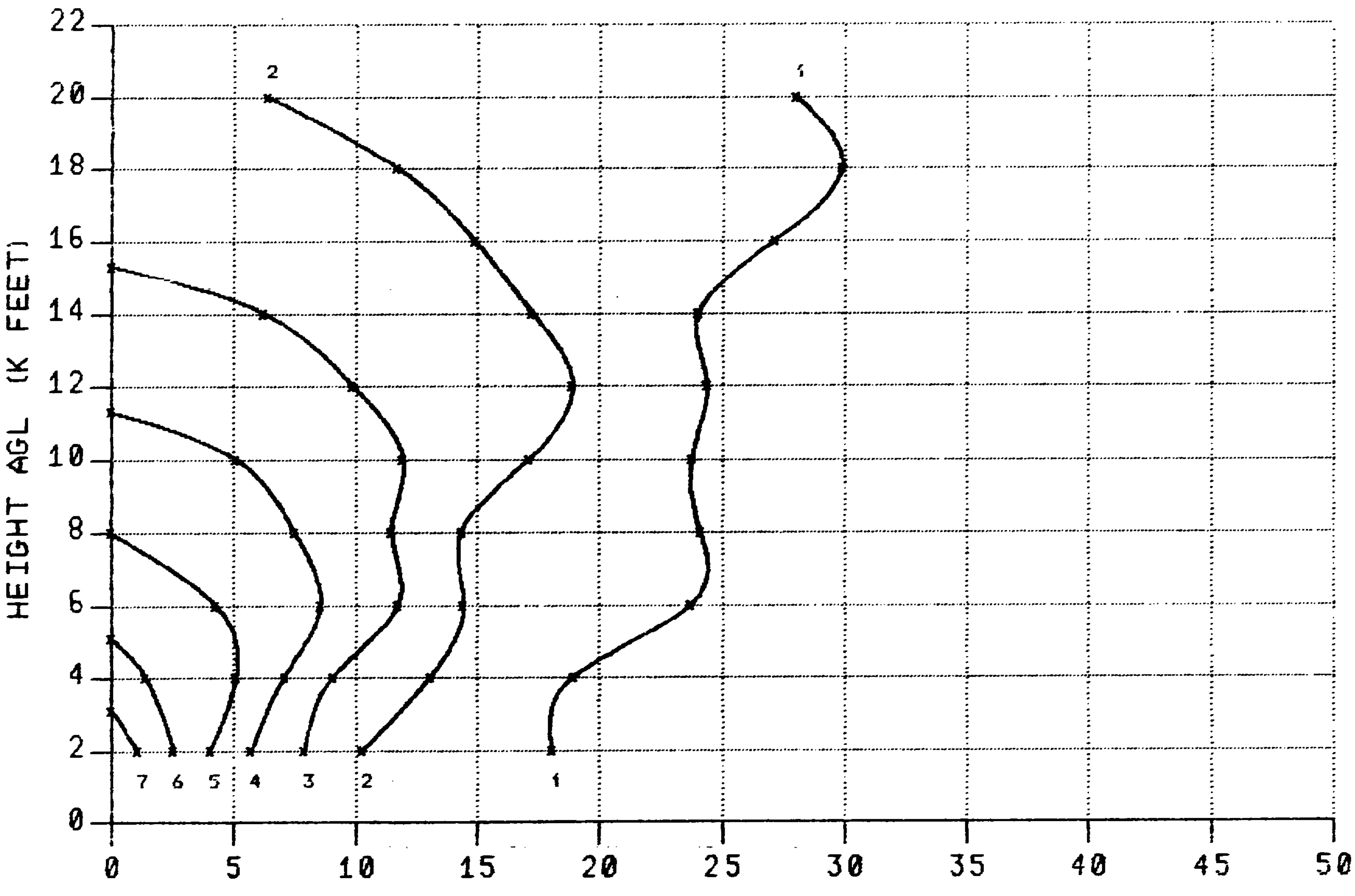
CLOUD COVER: CLR-SCT

BKGND. REFLECTANCE: 15 TO 49 PERCENT
SOLAR ELEV. ANGLE : 0 TO 10 DEGREE
SURFACE VISIBILITY: 7 MILES (11.3 KM)
MIXING LYR. DEPTH : 3000 FEET



GROUND RANGE (K FEET)
CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

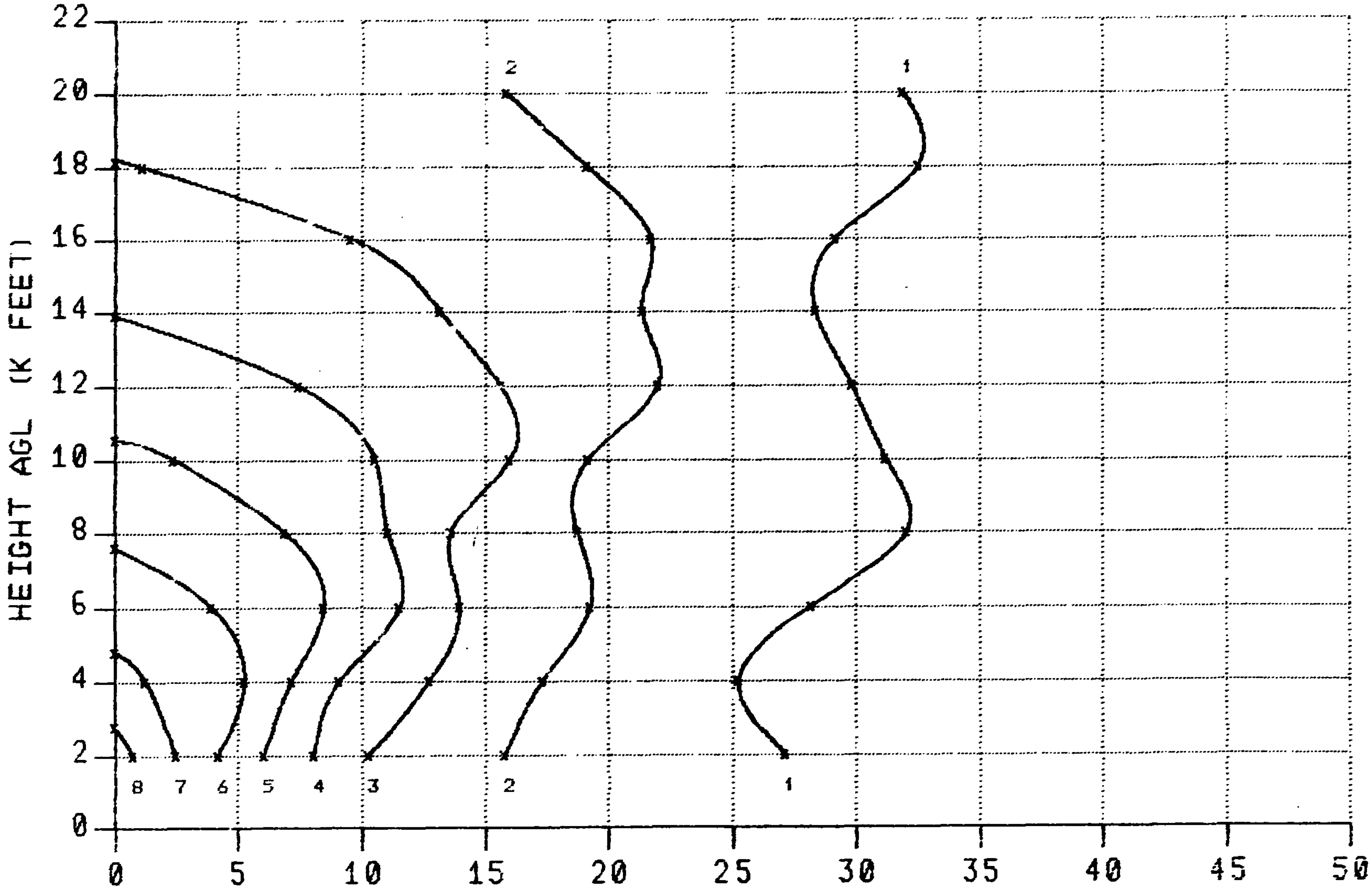
CLOUD COVER: CLR-SCT BKGND. REFLECTANCE: 15 TO 49 PERCENT
SOLAR ELEV. ANGLE : 0 TO 10 DEGREE
SURFACE VISIBILITY: 10 MILES (16.1 KM)
MIXING LYR. DEPTH : 3000 FEET



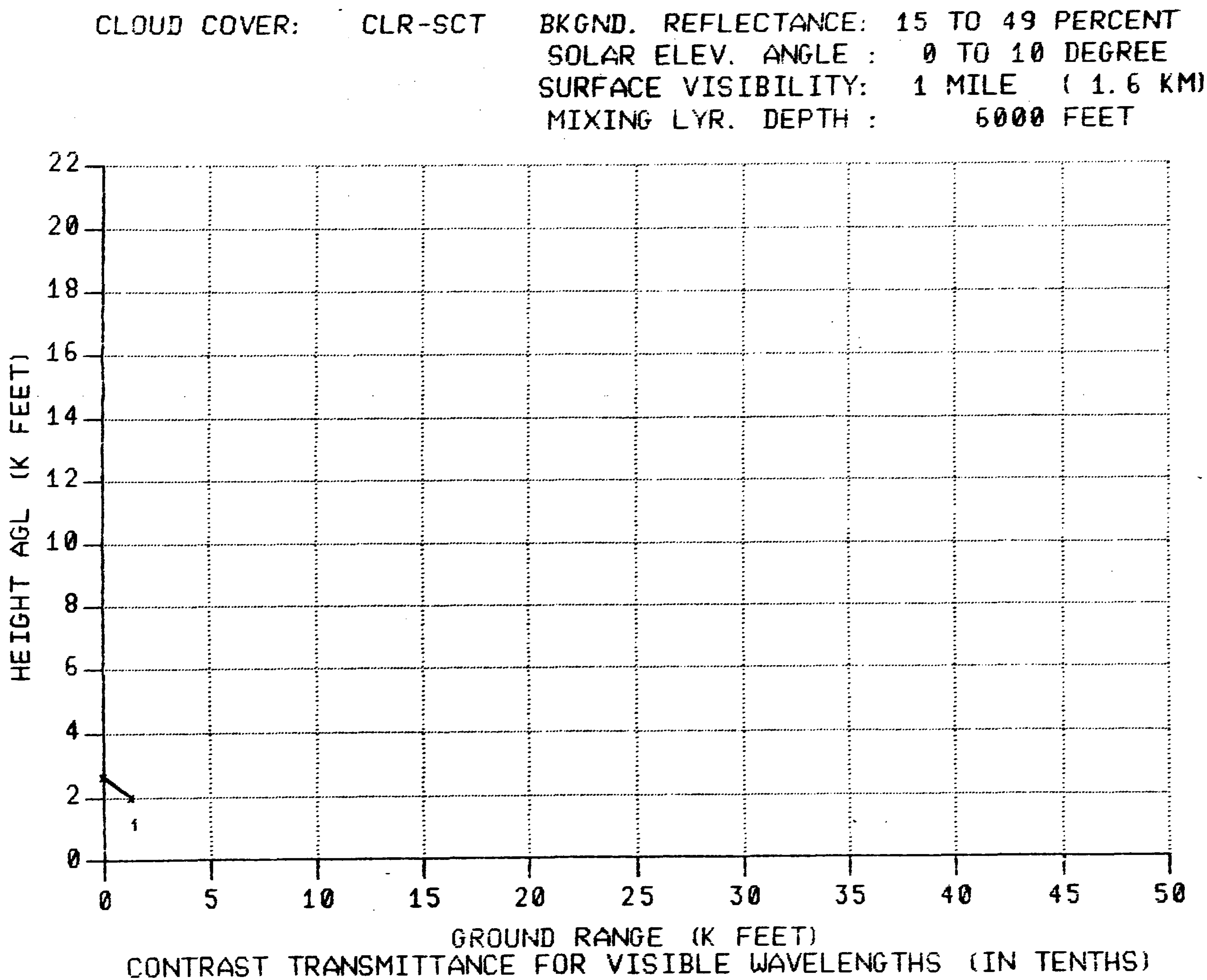
CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

CLOUD COVER: CLR-SCT

BKGND. REFLECTANCE: 15 TO 49 PERCENT
SOLAR ELEV. ANGLE : 0 TO 10 DEGREE
SURFACE VISIBILITY: 15 MILES (24.1 KM)
MIXING LYR. DEPTH : 3000 FEET

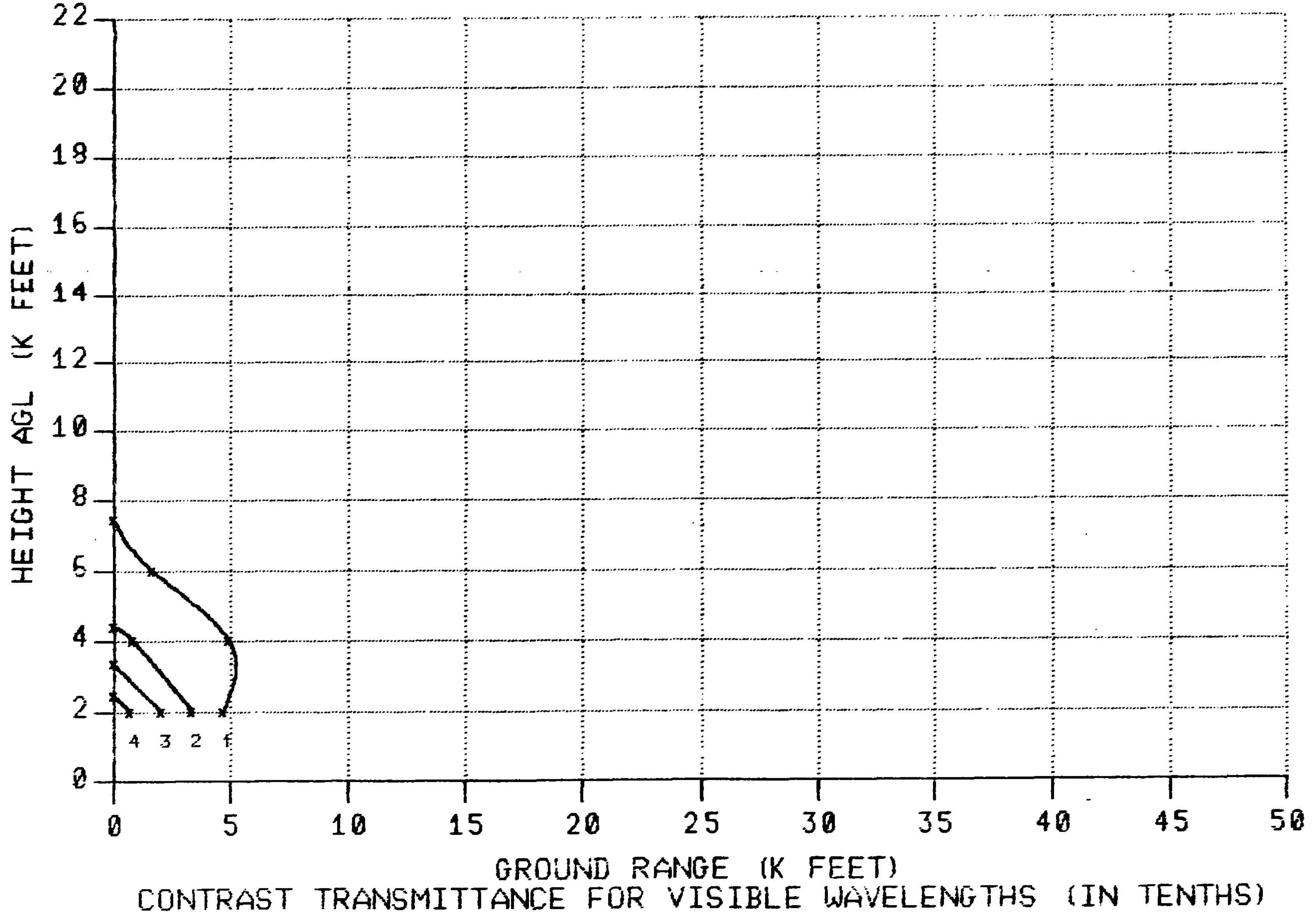


GROUND RANGE (K FEET)
CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)


CLOUD COVER: CLR-SCT
BKGND. REFLECTANCE: 15 TO 49 PERCENT
SOLAR ELEV. ANGLE : 0 TO 10 DEGREE
SURFACE VISIBILITY: 1 MILE (1.6 KM)
MIXING LYR. DEPTH : 6000 FEET
HEIGHT AGL (K FEET)
22
20
18
16
14
12
10
8
6
4
2
0
1
0
5
10
15
20
25
30
35
40
45
50
GROUND RANGE (K FEET)
CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

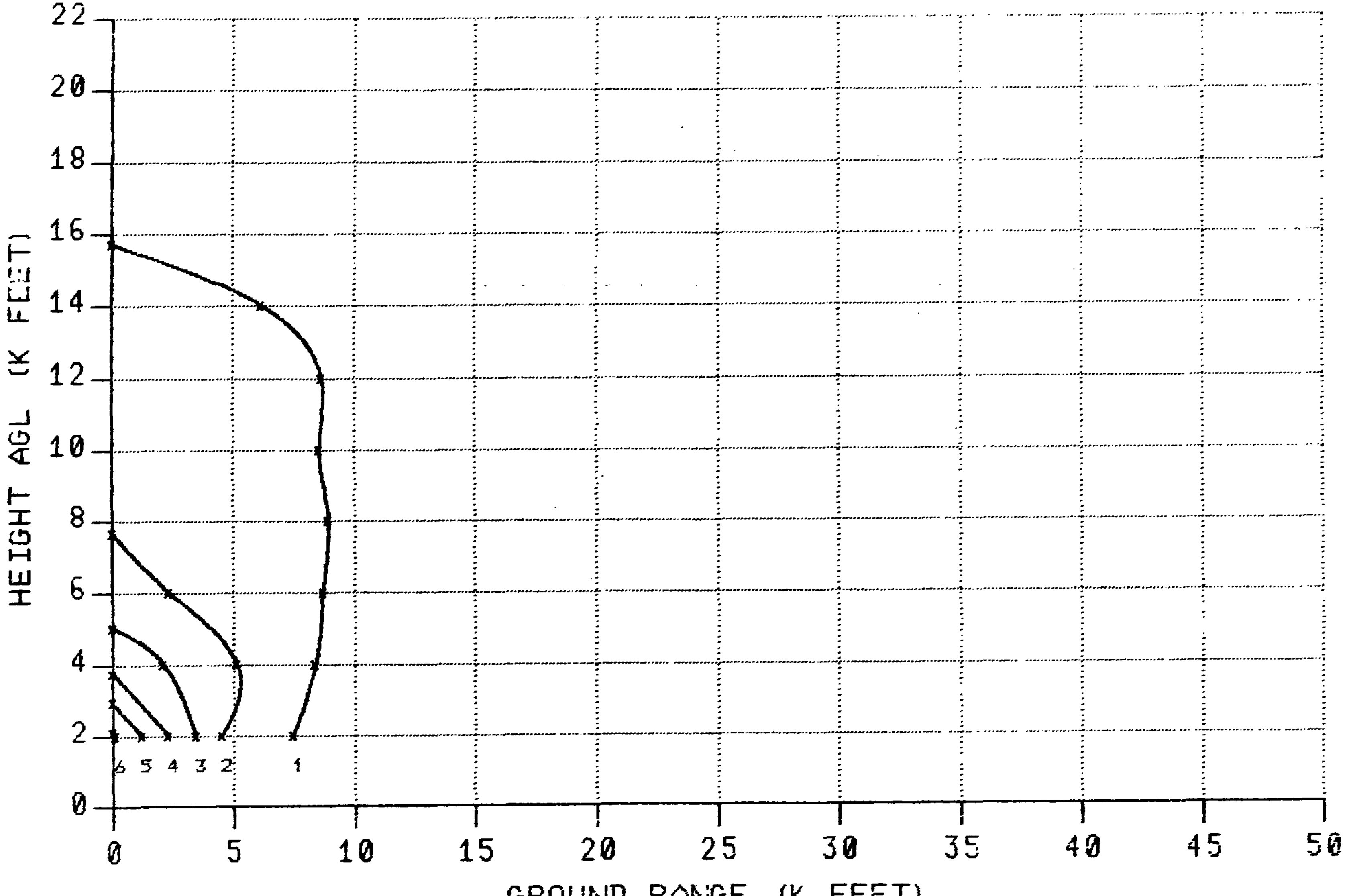
CLOUD COVER: CLR-SCT

BKGND. REFLECTANCE: 15 TO 49 PERCENT
SOLAR ELEV. ANGLE : 0 TO 10 DEGREE
SURFACE VISIBILITY: 3 MILES (4.8 KM)
MIXING LYR. DEPTH : 6000 FEET



CLOUD COVER: CLR-SCT

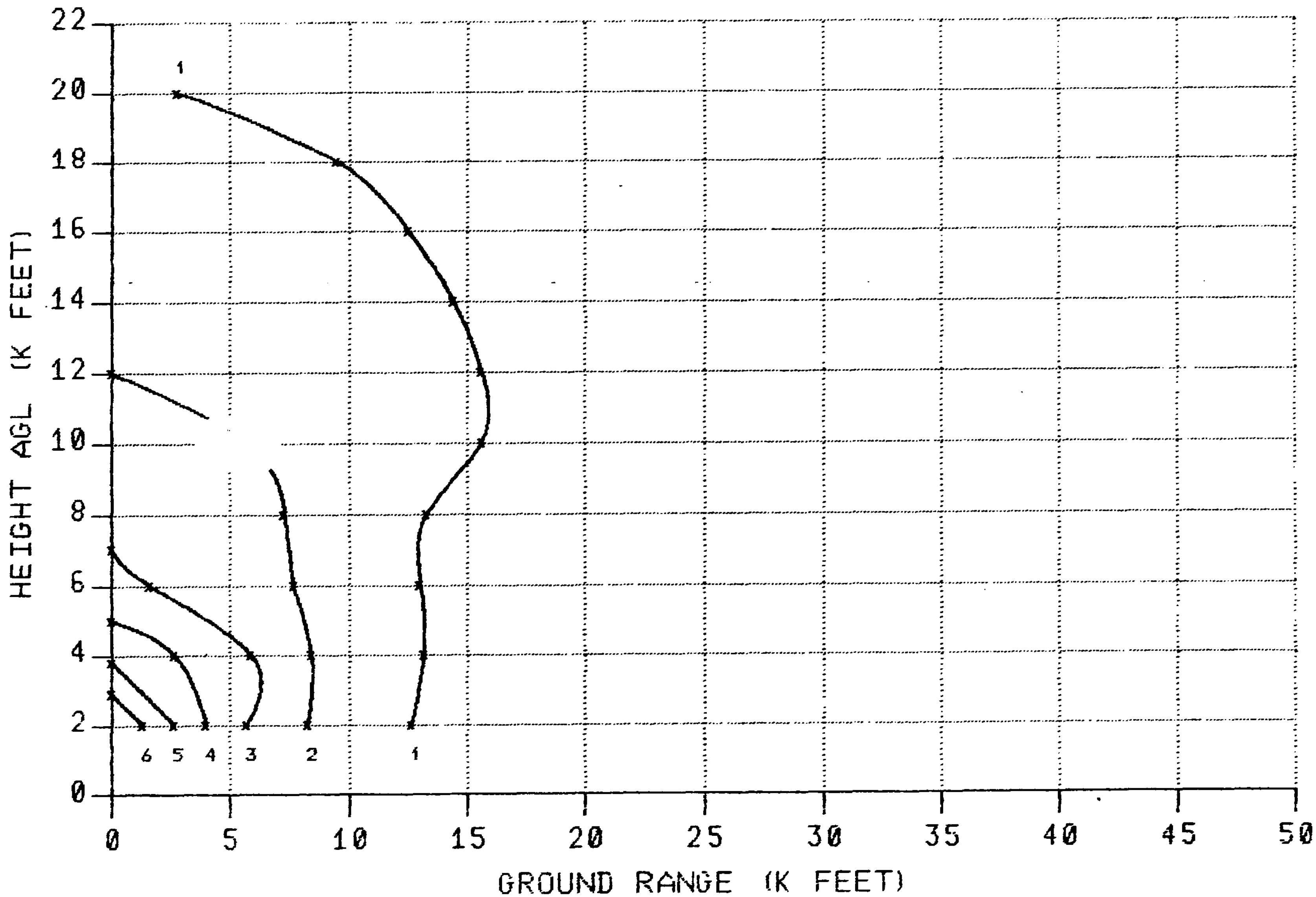
BKGND. REFLECTANCE: 15 TO 49 PERCENT
SOLAR ELEV. ANGLE : 0 TO 10 DEGREE
SURFACE VISIBILITY: 5 MILES (8.0 KM)
MIXING LYR. DEPTH : 6000 FEET



CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

CLOUD COVER: CLR-SCT

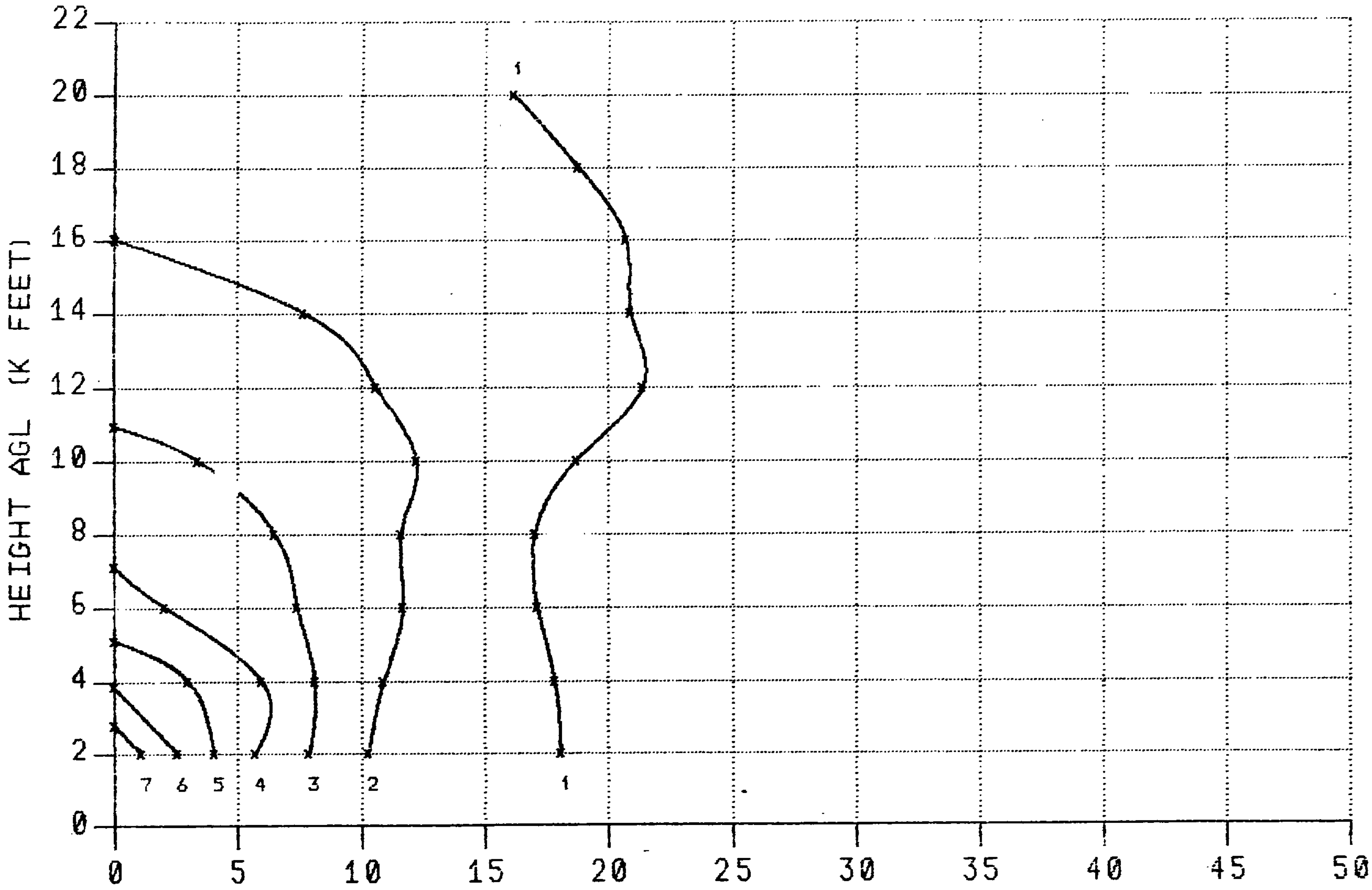
BKGND. REFLECTANCE: 15 TO 49 PERCENT
SOLAR ELEV. ANGLE : 0 TO 10 DEGREE
SURFACE VISIBILITY: 7 MILES (11.3 KM)
MIXING LYR. DEPTH : 6000 FEET



CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

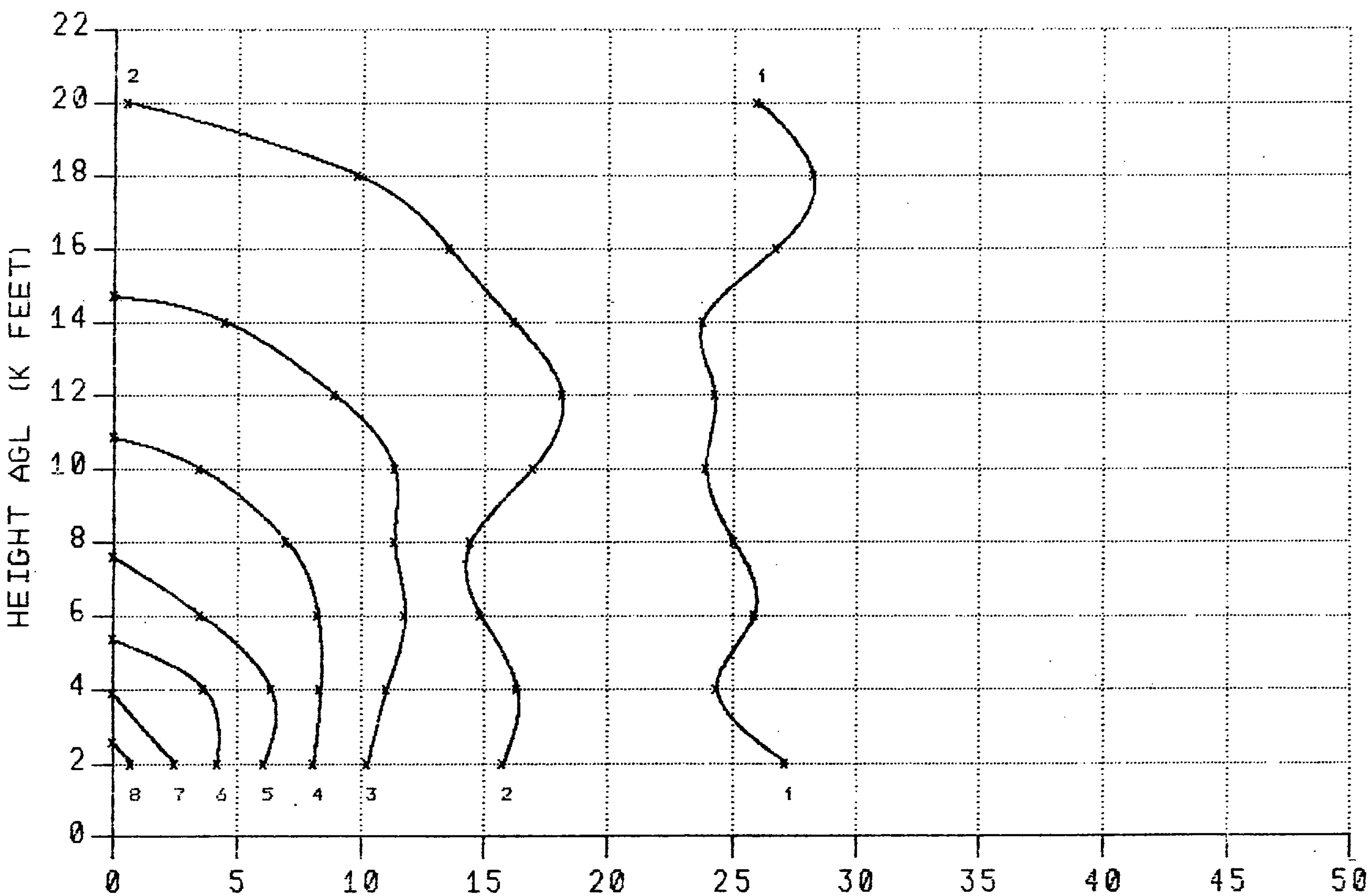
CLOUD COVER: CLR-SCT

BKGND. REFLECTANCE: 15 TO 49 PERCENT
SOLAR ELEV. ANGLE : 0 TO 10 DEGREE
SURFACE VISIBILITY: 10 MILES (16.1 KM)
MIXING LYR. DEPTH : 6000 FEET



CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

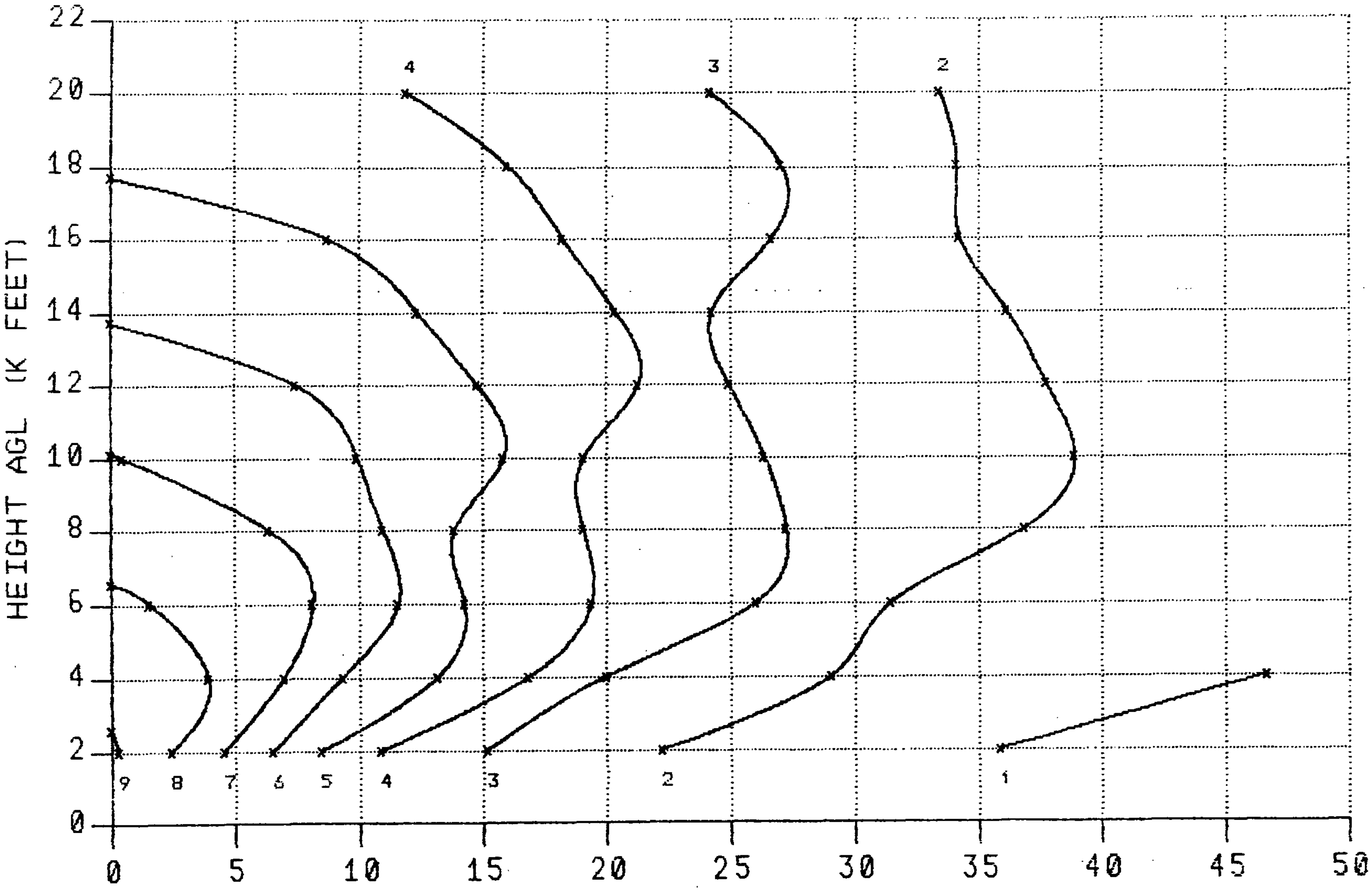
CLOUD COVER: CLR-SCT BKGND. REFLECTANCE: 15 TO 49 PERCENT
SOLAR ELEV. ANGLE : 0 TO 10 DEGREE
SURFACE VISIBILITY: 15 MILES (24.1 KM)
MIXING LYR. DEPTH : 6000 FEET



GROUND RANGE (K FEET)
CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

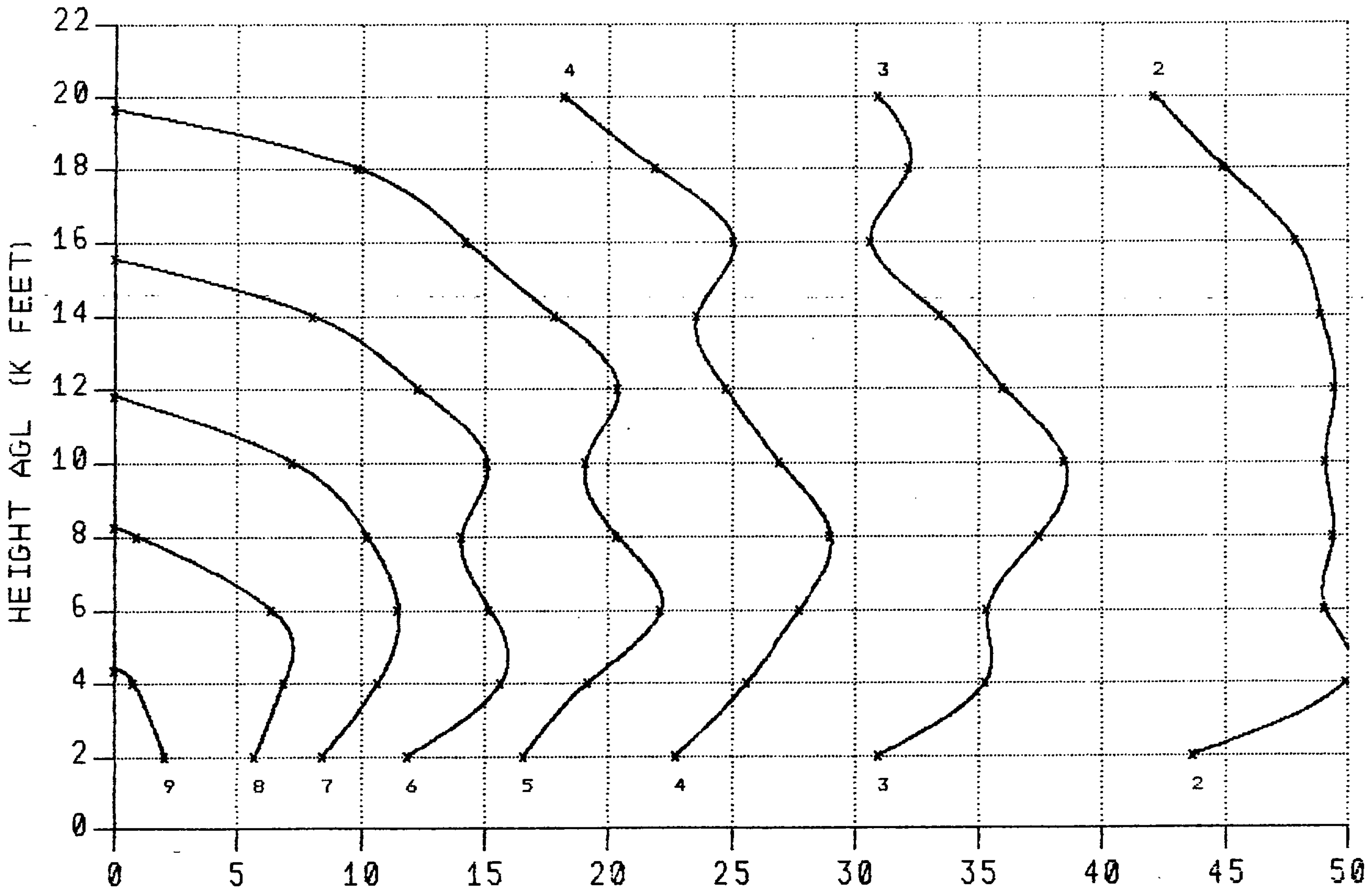
CLOUD COVER: CLR-SCT

BKGND. REFLECTANCE: 15 TO 49 PERCENT
SOLAR ELEV. ANGLE : 11 TO 30 DEGREE
SURFACE VISIBILITY: 1 MILE (1.6 KM)
MIXING LYR. DEPTH : BELOW 50 FEET



GROUND RANGE (K FEET)
CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

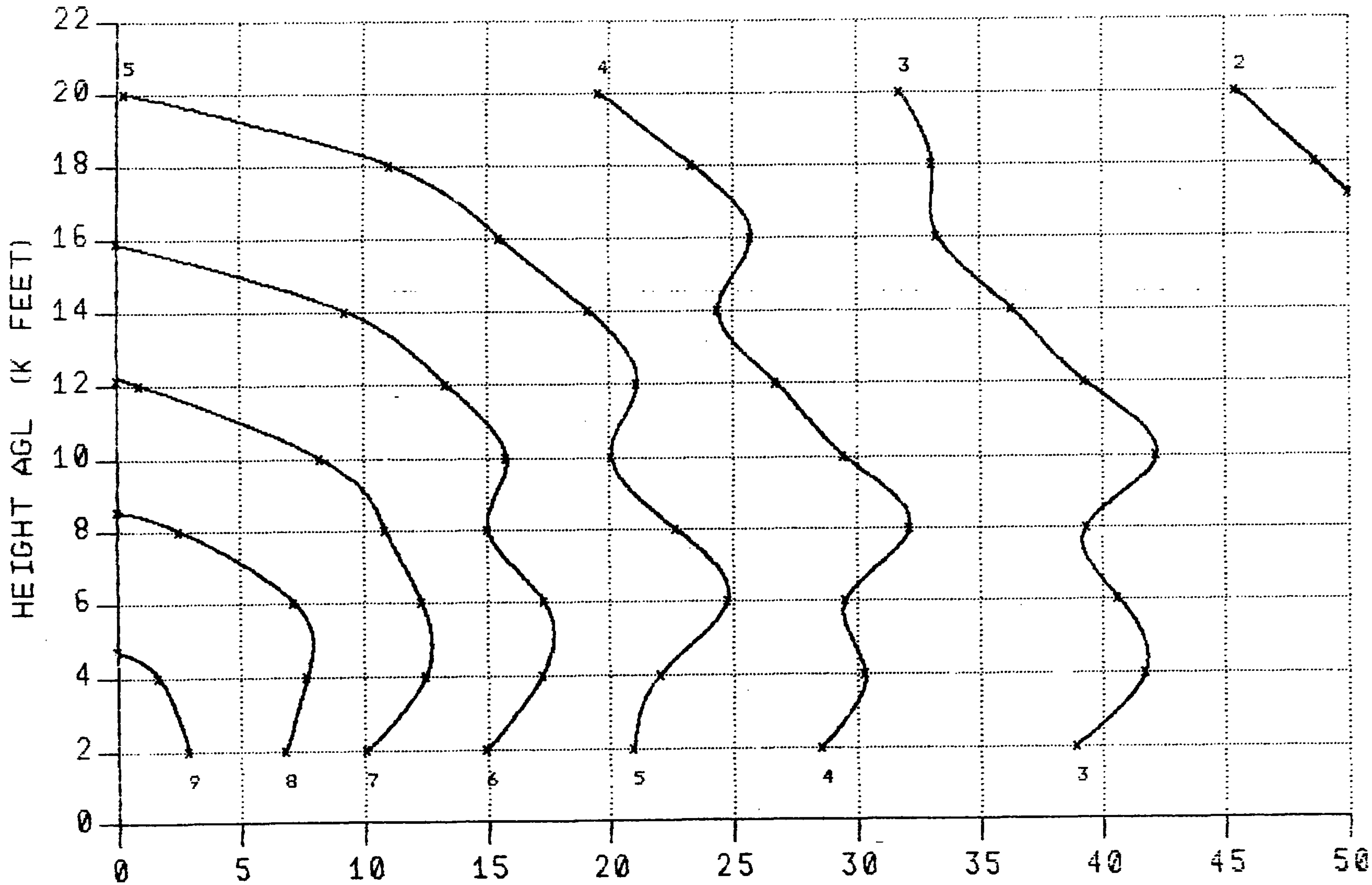
CLOUD COVER: CLR-SCT BKGND. REFLECTANCE: 15 TO 49 PERCENT
SOLAR ELEV. ANGLE : 11 TO 30 DEGREE
SURFACE VISIBILITY: 3 MILES (4.8 KM)
MIXING LYR. DEPTH : BELOW 50 FEET



GROUND RANGE (K FEET)
CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

CLOUD COVER: CLR-SCT

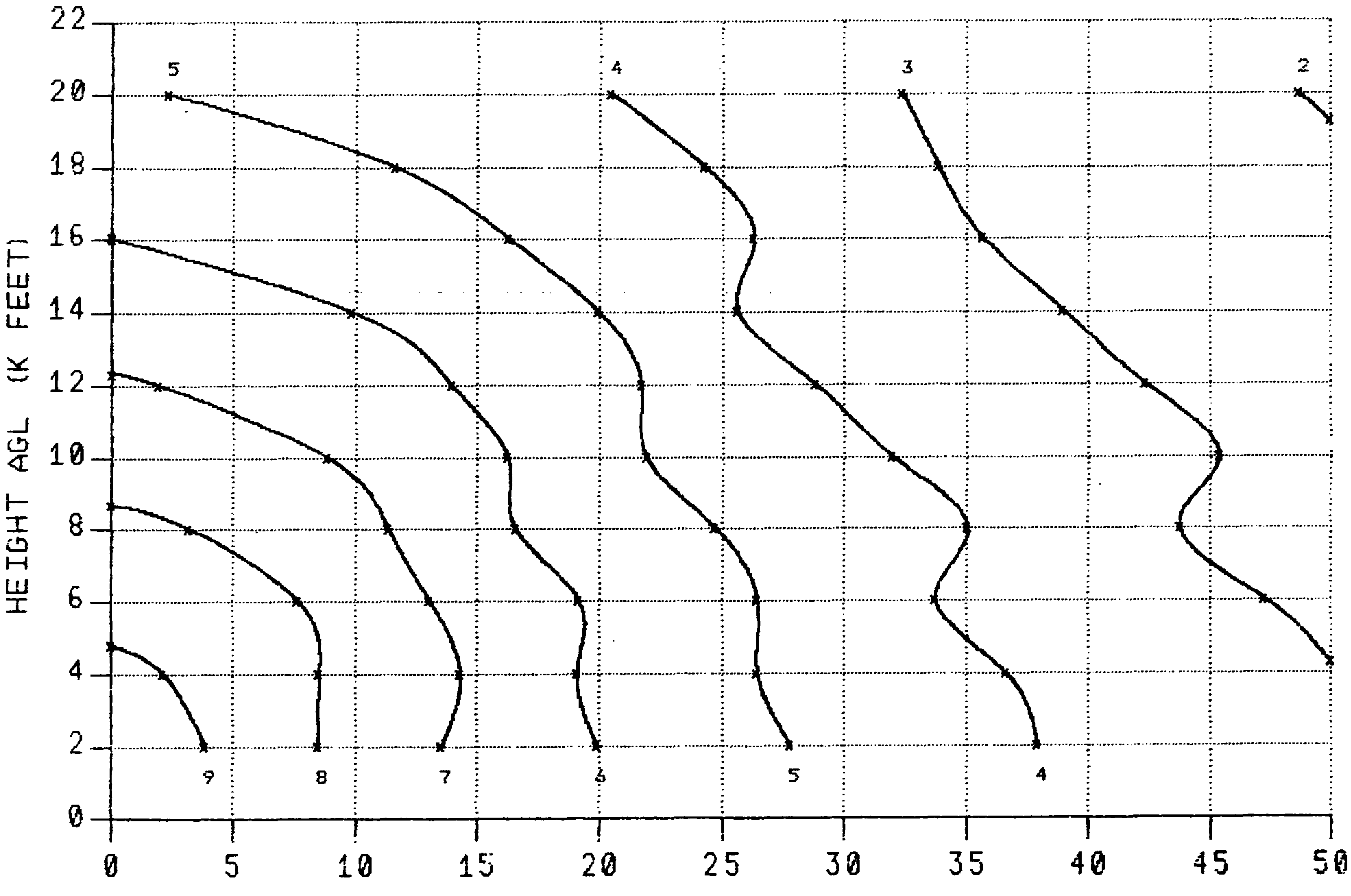
BKGND. REFLECTANCE: 15 TO 49 PERCENT
SOLAR ELEV. ANGLE : 11 TO 30 DEGREE
SURFACE VISIBILITY: 5 MILES (8.0 KM)
MIXING LYR. DEPTH : BELOW 50 FEET



GROUND RANGE (K FEET)
CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

CLOUD COVER: CLR-SCT

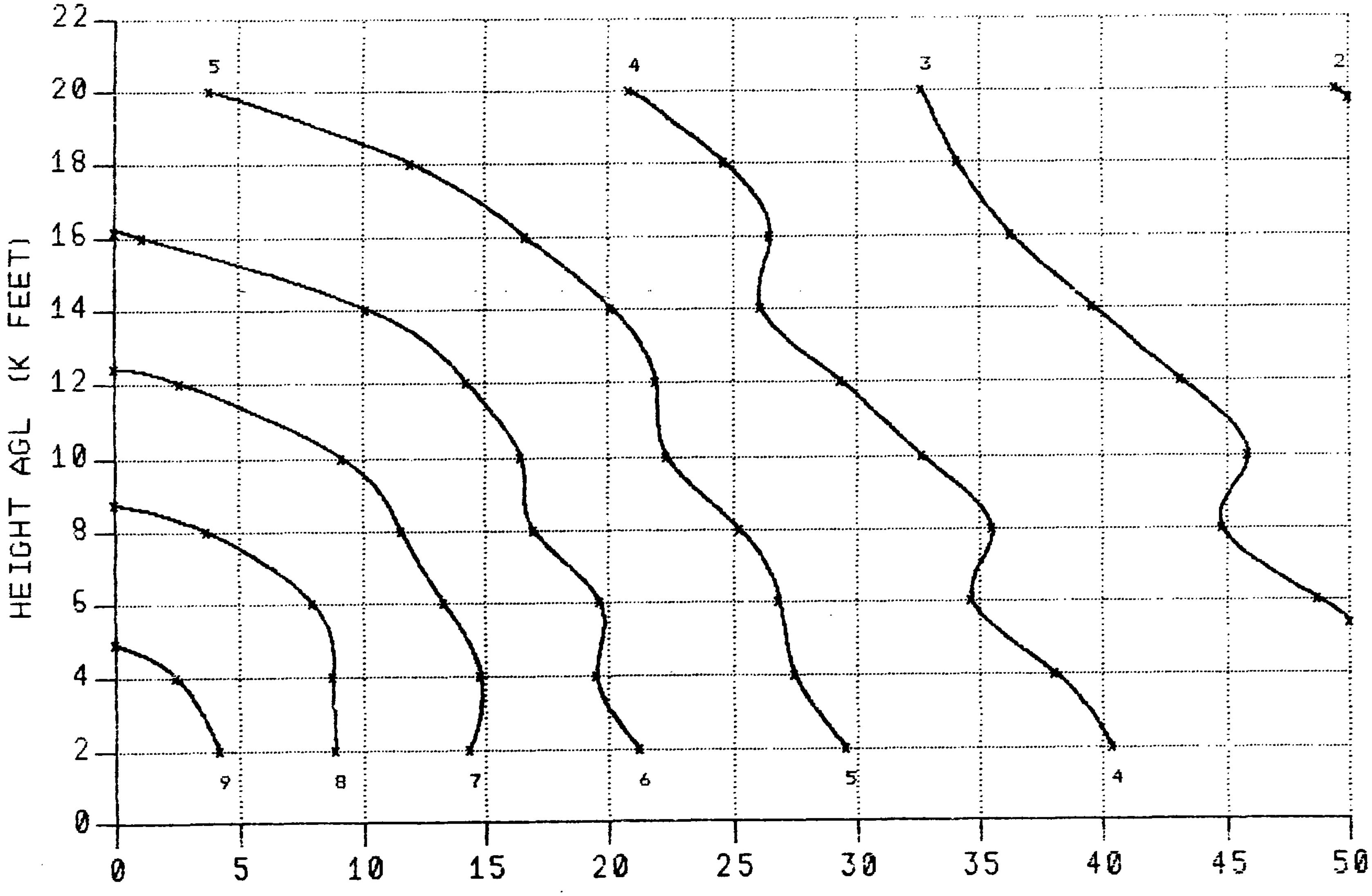
BKGND. REFLECTANCE: 15 TO 49 PERCENT
SOLAR ELEV. ANGLE : 11 TO 30 DEGREE
SURFACE VISIBILITY: 7 MILES (11.3 KM)
MIXING LYR. DEPTH : BELOW 50 FEET



CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

CLOUD COVER: CLR-SCT

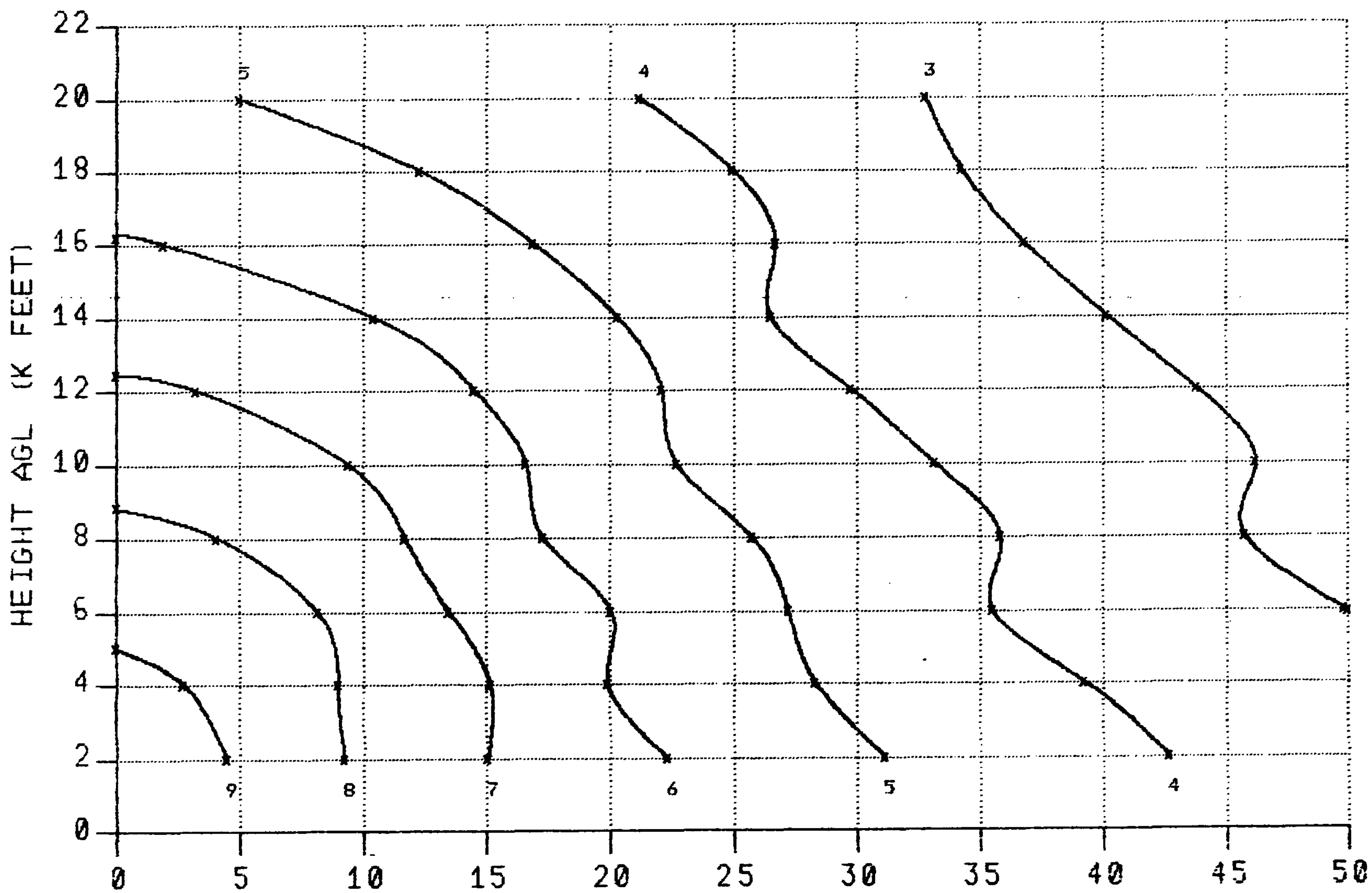
BKGND. REFLECTANCE: 15 TO 49 PERCENT
SOLAR ELEV. ANGLE : 11 TO 30 DEGREE
SURFACE VISIBILITY: 10 MILES (16.1 KM)
MIXING LYR. DEPTH : BELOW 50 FEET



CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

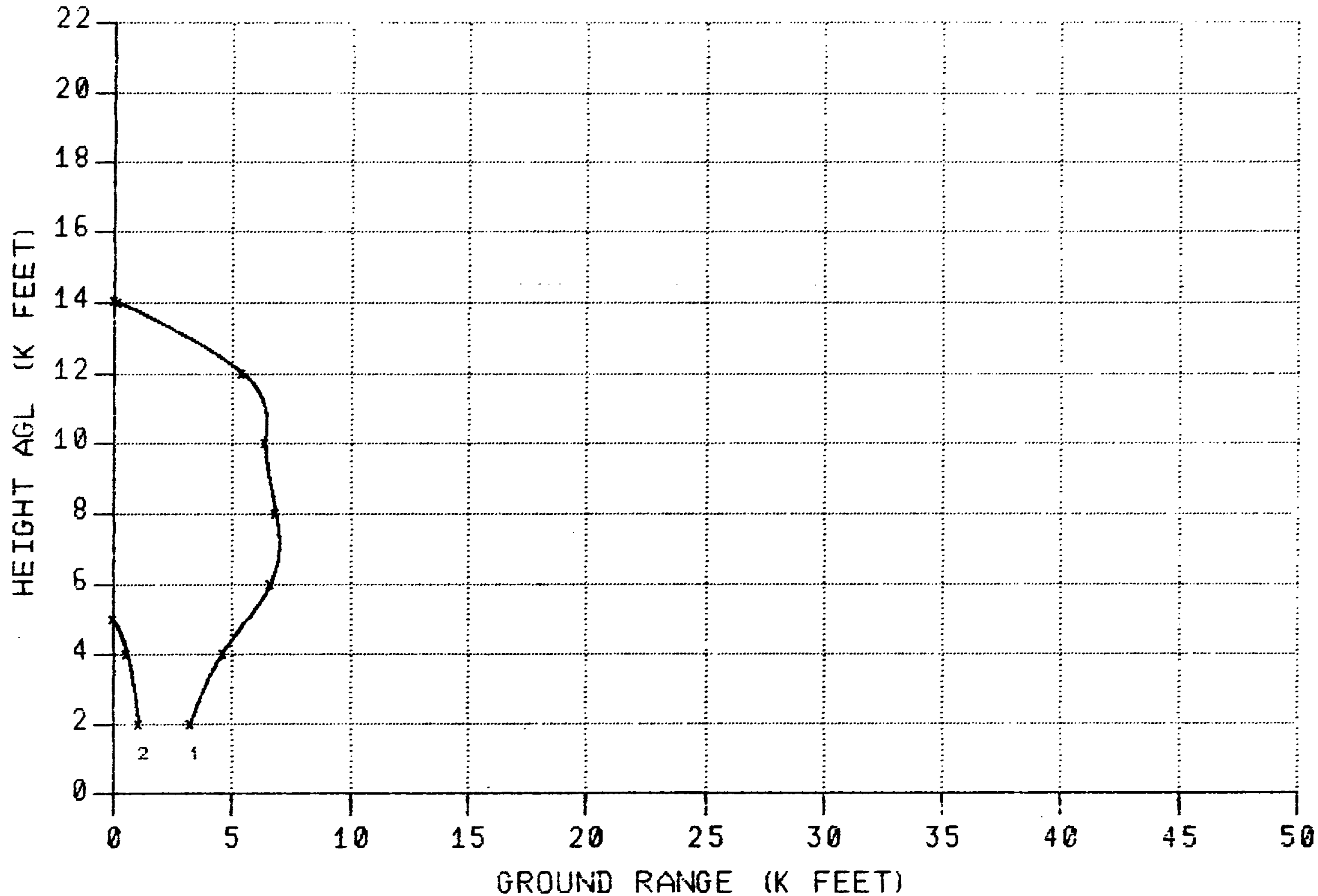
CLOUD COVER: CLR-SCT

BKGND. REFLECTANCE: 15 TO 49 PERCENT
SOLAR ELEV. ANGLE : 11 TO 30 DEGREE
SURFACE VISIBILITY: 15 MILES (24.1 KM)
MIXING LYR. DEPTH : BELOW 50 FEET



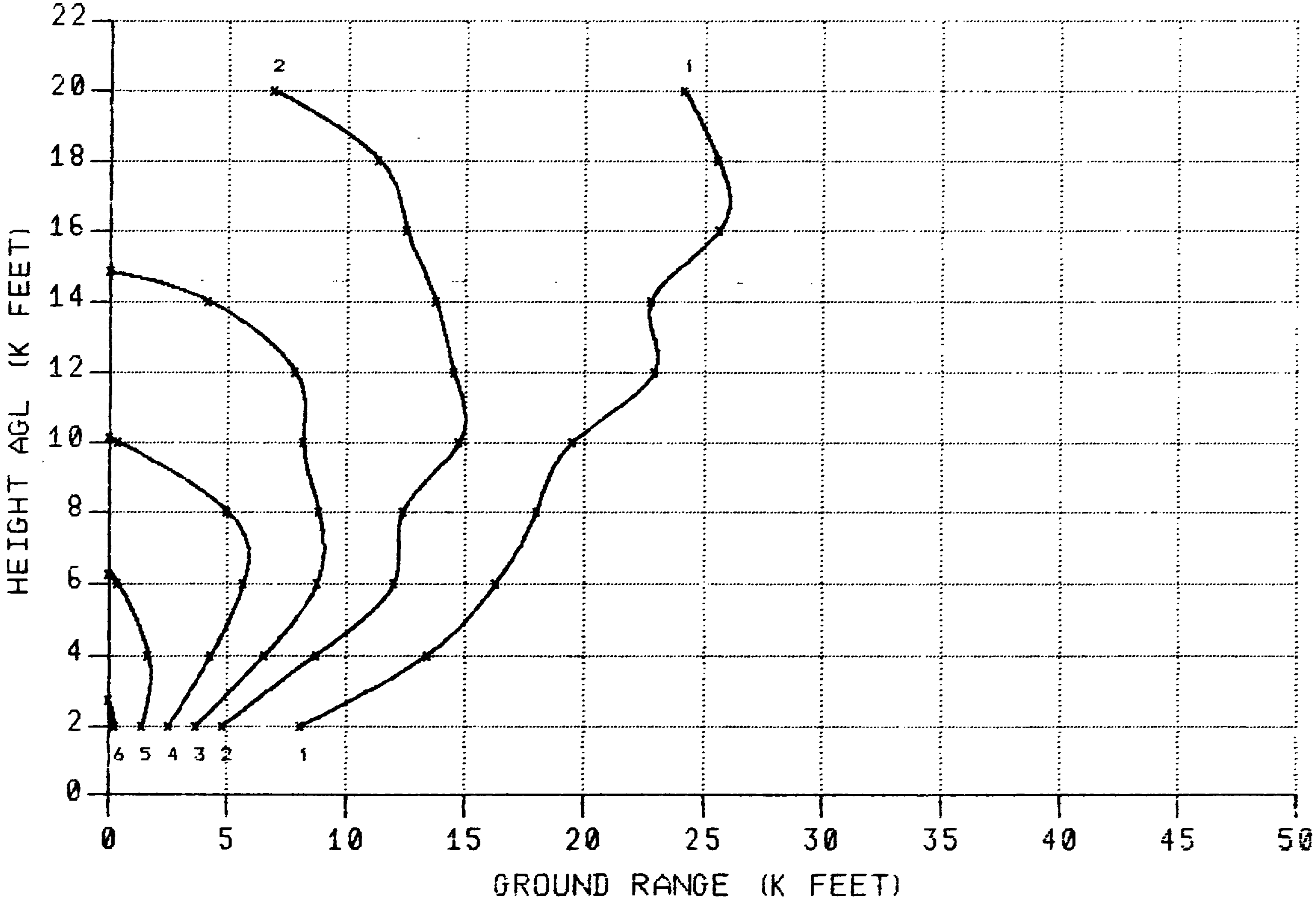
GROUND RANGE (K FEET)
CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

CLOUD COVER: CLR-SCT BKGND. REFLECTANCE: 15 TO 49 PERCENT
SOLAR ELEV. ANGLE : 11 TO 30 DEGREE
SURFACE VISIBILITY: 1 MILE (1.6 KM)
MIXING LYR. DEPTH : 1500 FEET



CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

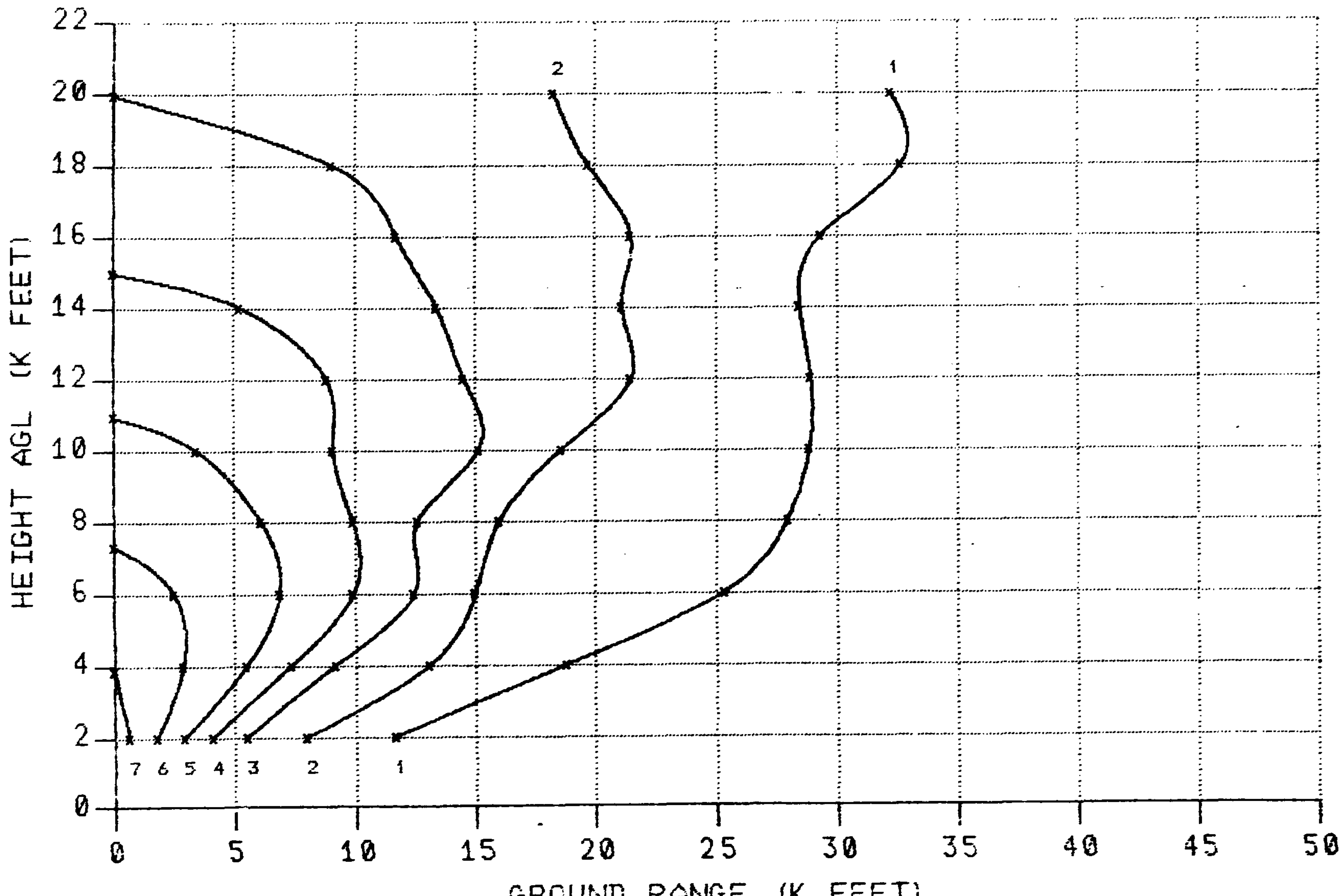
CLOUD COVER: CLR-SCT BKGND. REFLECTANCE: 15 TO 49 PERCENT
SOLAR ELEV. ANGLE : 11 TO 30 DEGREE
SURFACE VISIBILITY: 3 MILES (4.8 KM)
MIXING LYR. DEPTH : 1500 FEET



CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

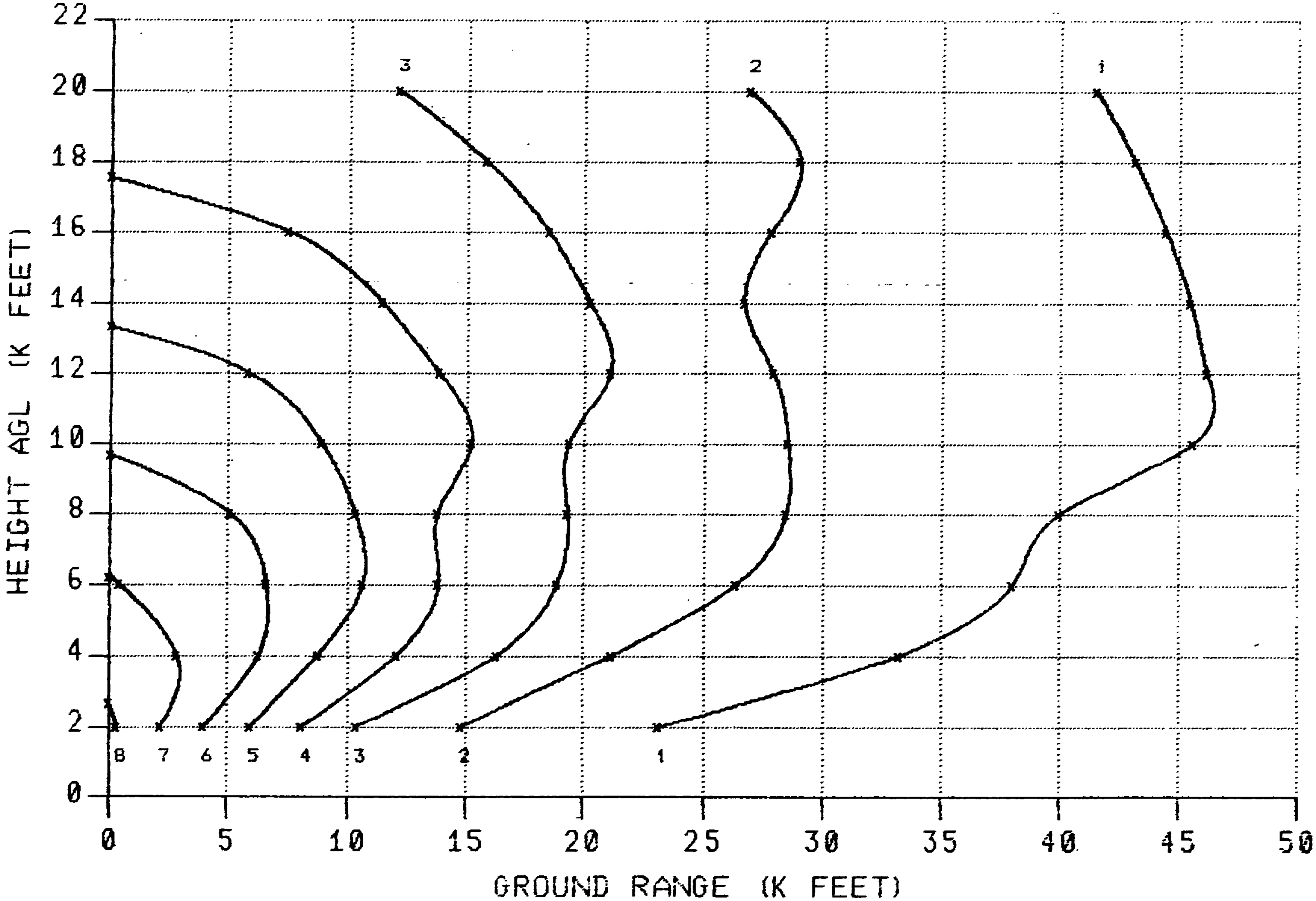
CLOUD COVER: CLR-SCT

BKGND. REFLECTANCE: 15 TO 49 PERCENT
SOLAR ELEV. ANGLE : 11 TO 30 DEGREE
SURFACE VISIBILITY: 5 MILES (8.0 KM)
MIXING LYR. DEPTH : 1500 FEET



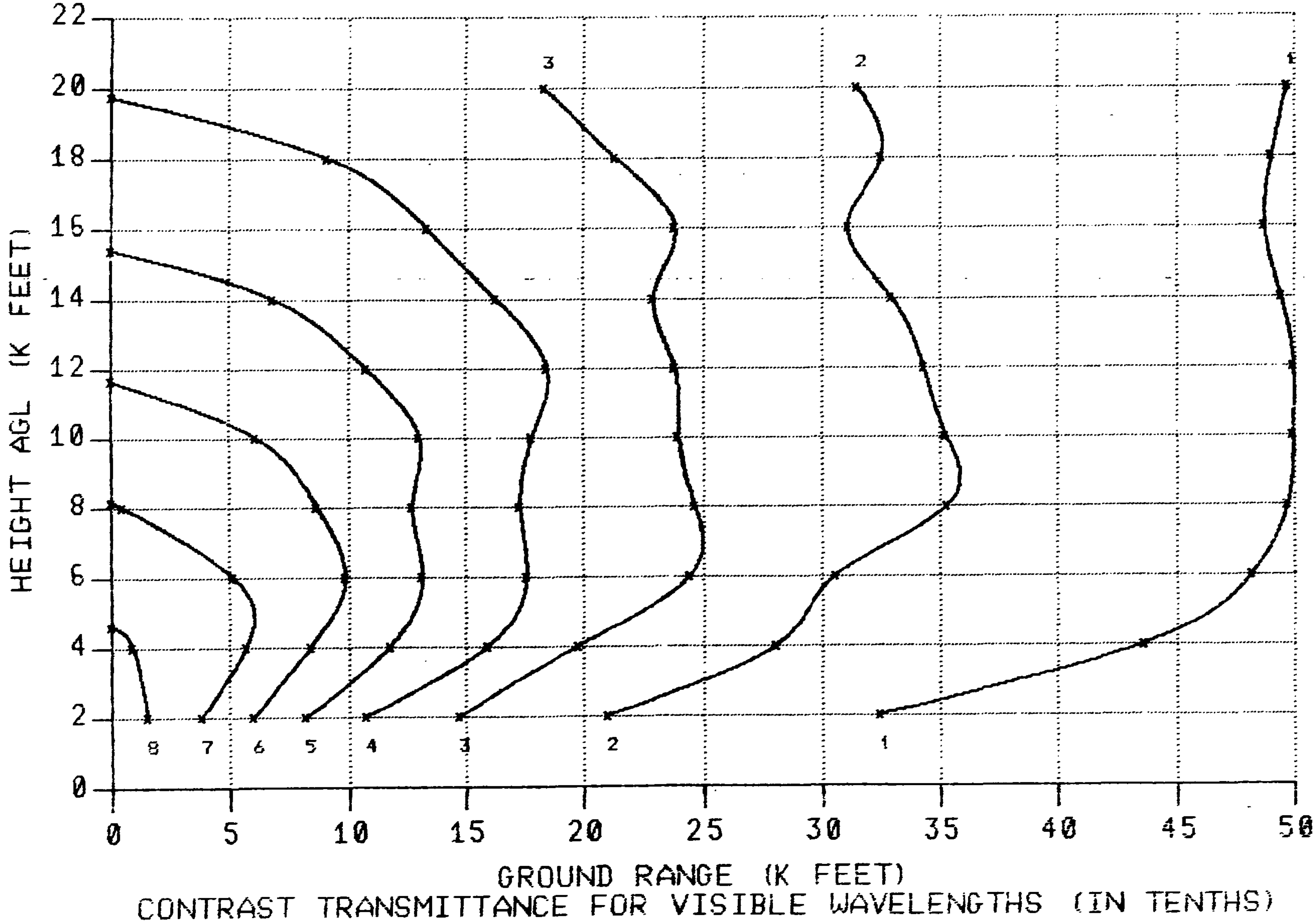
CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

CLOUD COVER: CLR-SCT BKGND. REFLECTANCE: 15 TO 49 PERCENT
SOLAR ELEV. ANGLE : 11 TO 30 DEGREE
SURFACE VISIBILITY: 7 MILES (11.3 KM)
MIXING LYR. DEPTH : 1500 FEET



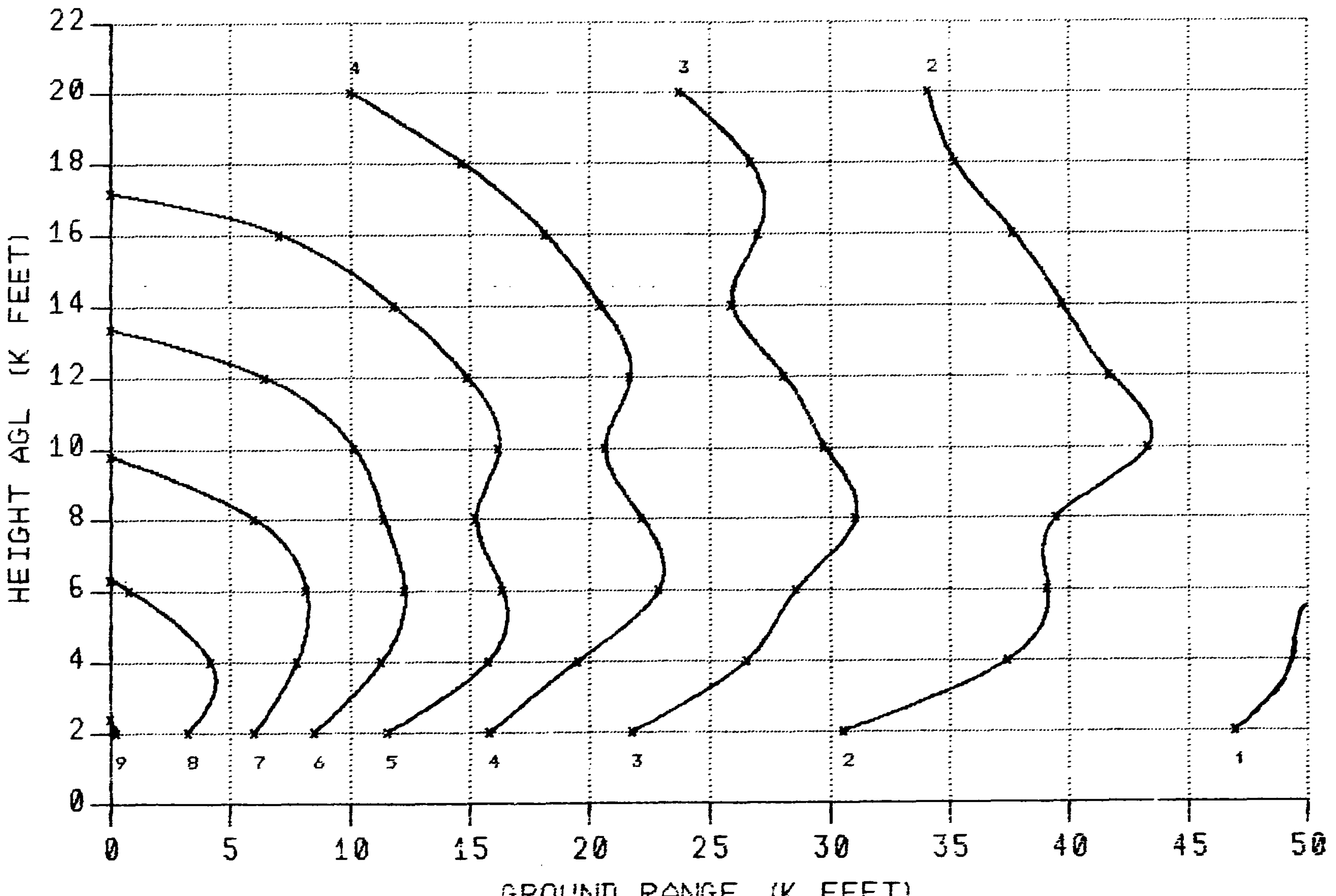
CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

CLOUD COVER: CLR-SCT BKGND. REFLECTANCE: 15 TO 49 PERCENT
SOLAR ELEV. ANGLE : 11 TO 30 DEGREE
SURFACE VISIBILITY: 10 MILES (16.1 KM)
MIXING LYR. DEPTH : 1500 FEET



CLOUD COVER: CLR-SCT

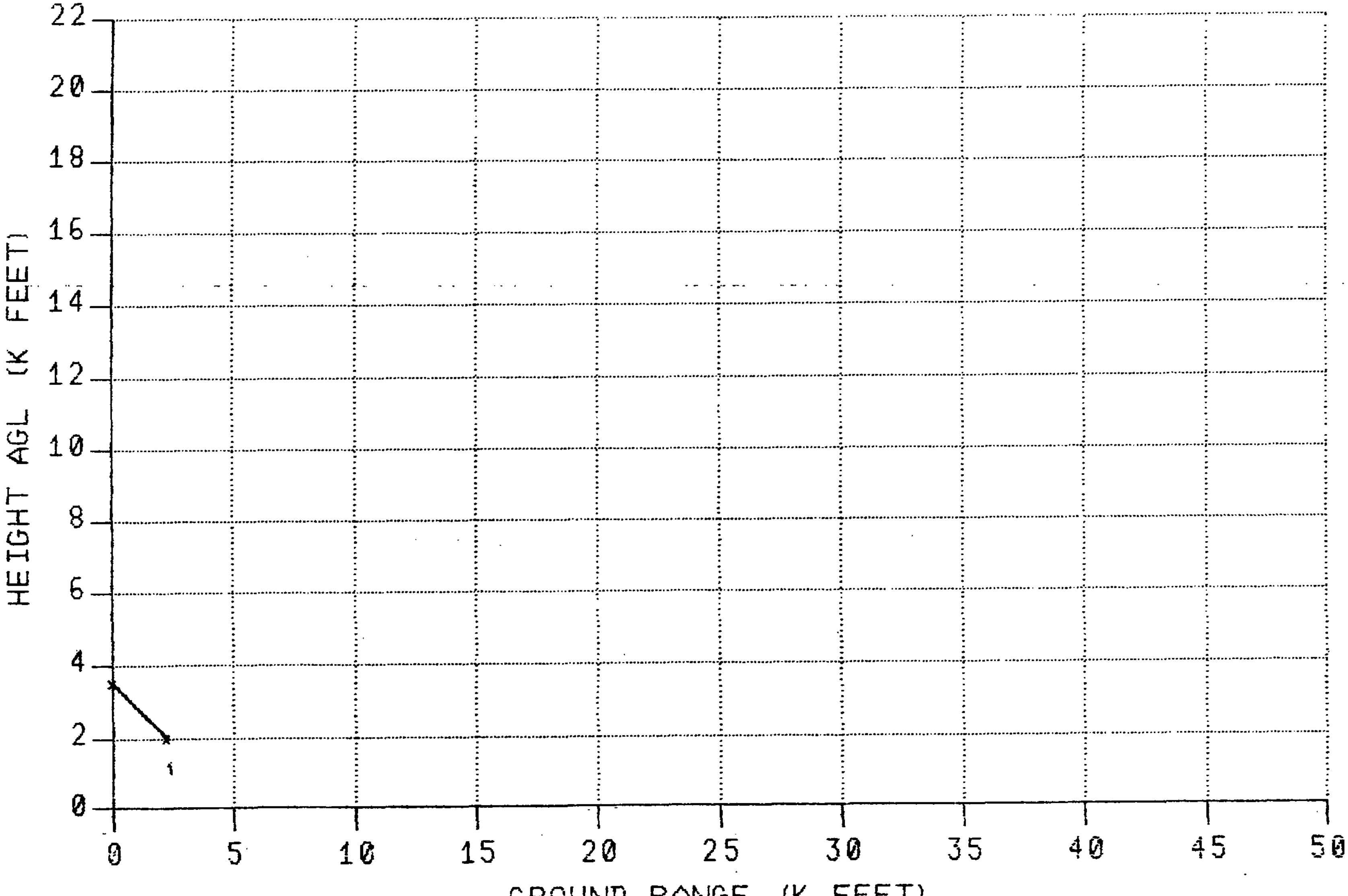
BKGND. REFLECTANCE: 15 TO 49 PERCENT
SOLAR ELEV. ANGLE : 11 TO 30 DEGREE
SURFACE VISIBILITY: 15 MILES (24.1 KM)
MIXING LYR. DEPTH : 1500 FEET



CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

CLOUD COVER: CLR-SCT

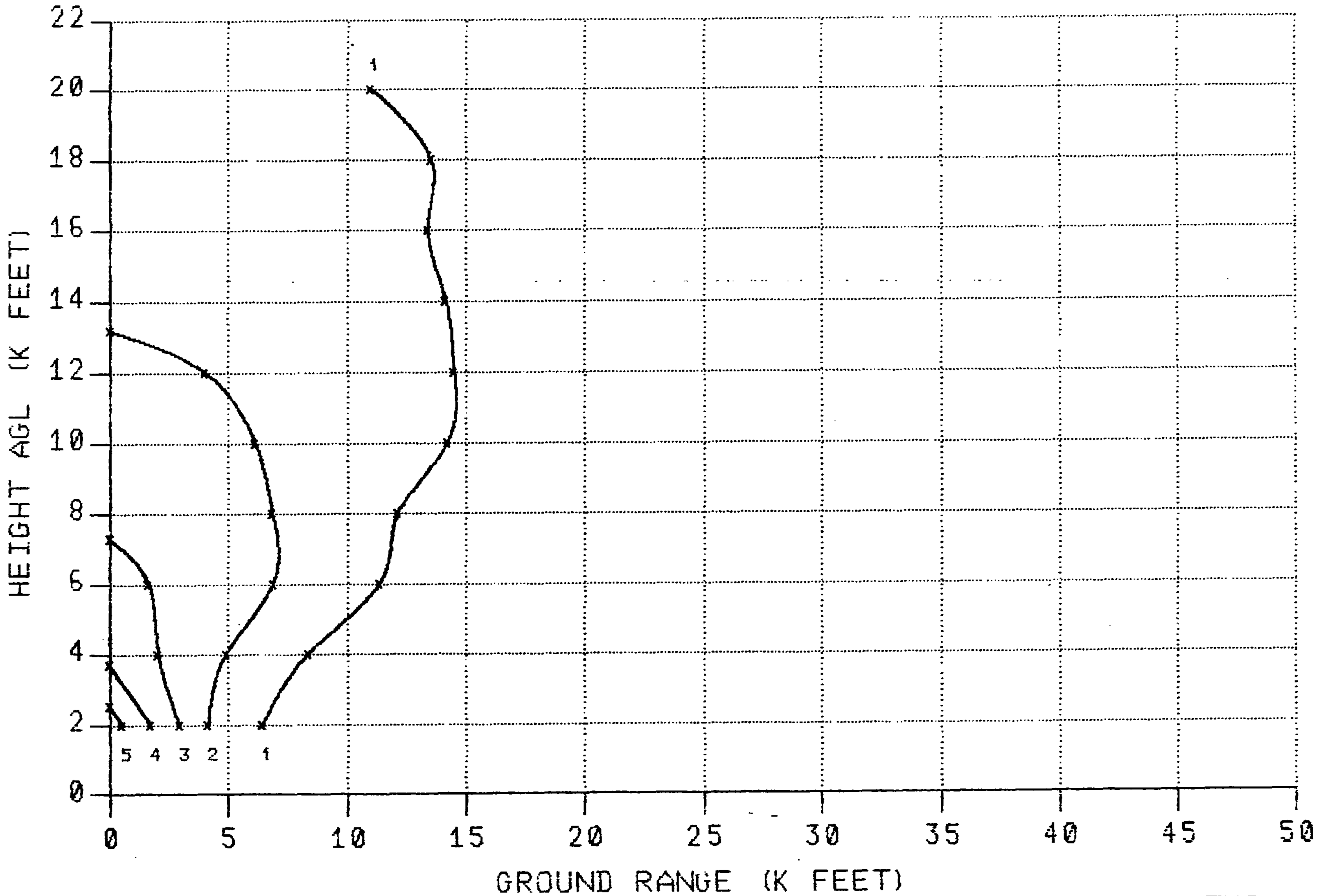
BKGND. REFLECTANCE: 15 TO 49 PERCENT
SOLAR ELEV. ANGLE : 11 TO 30 DEGREE
SURFACE VISIBILITY: 1 MILE (1.6 KM)
MIXING LYR. DEPTH : 3000 FEET



CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

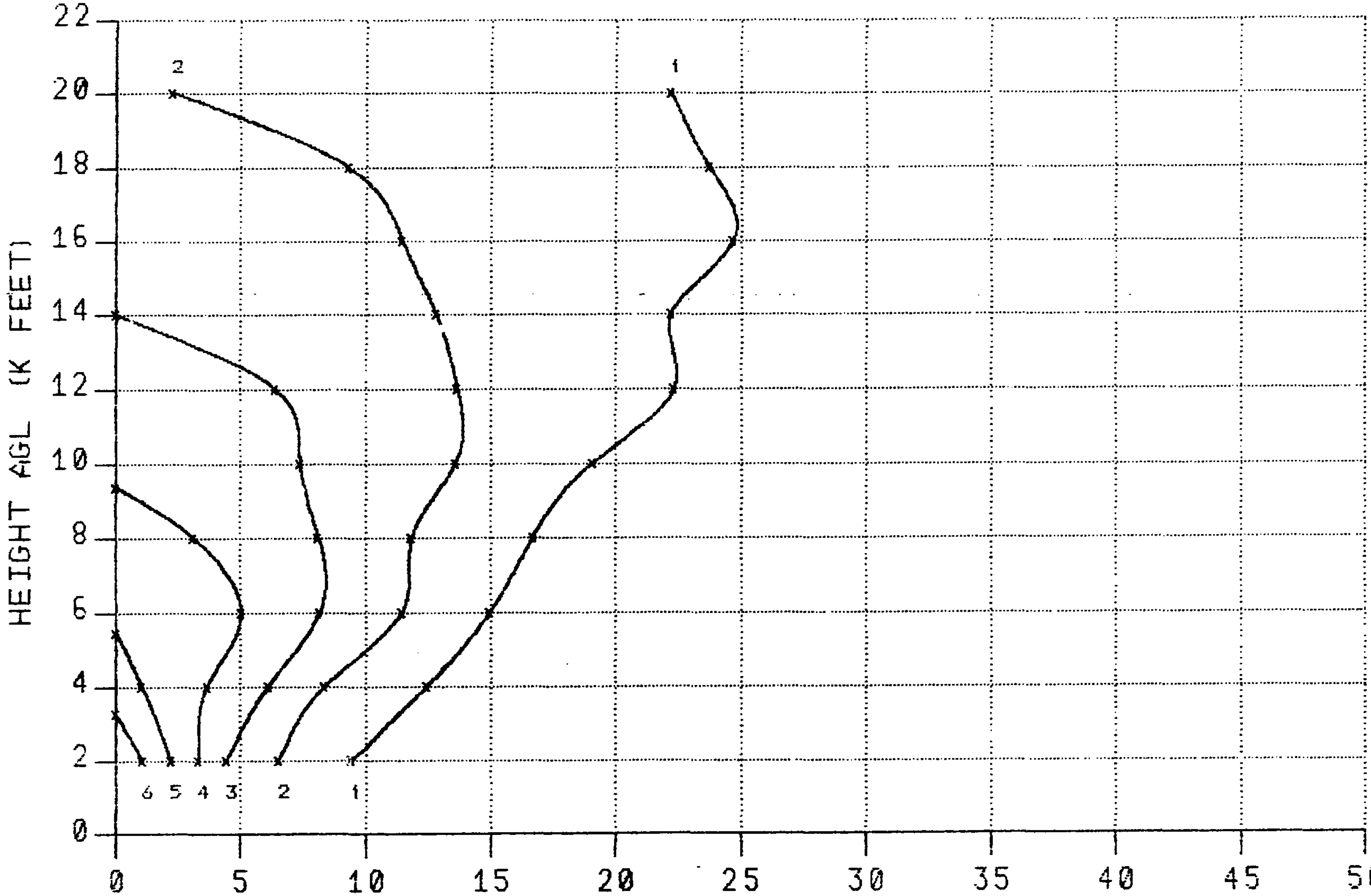
CLOUD COVER: CLR-SCT

BKGND. REFLECTANCE: 15 TO 49 PERCENT
SOLAR ELEV. ANGLE : 11 TO 30 DEGREE
SURFACE VISIBILITY: 3 MILES (4.8 KM)
MIXING LYR. DEPTH : 3000 FEET



CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

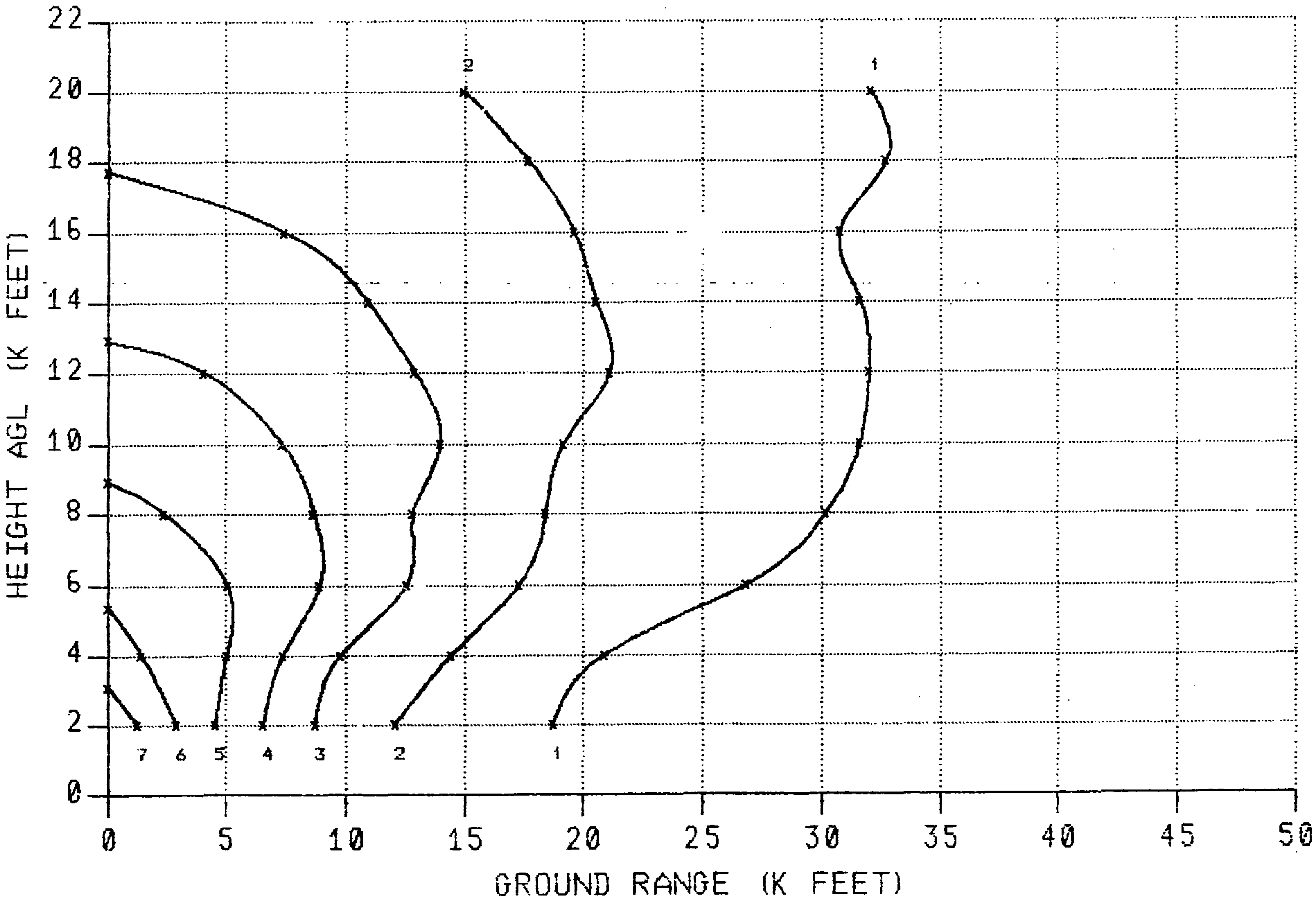
CLOUD COVER: CLR-SCT BKGND. REFLECTANCE: 15 TO 49 PERCENT
SOLAR ELEV. ANGLE : 11 TO 30 DEGREE
SURFACE VISIBILITY: 5 MILES (8.0 KM)
MIXING LYR. DEPTH : 3000 FEET



GROUND RANGE (K FEET)
CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

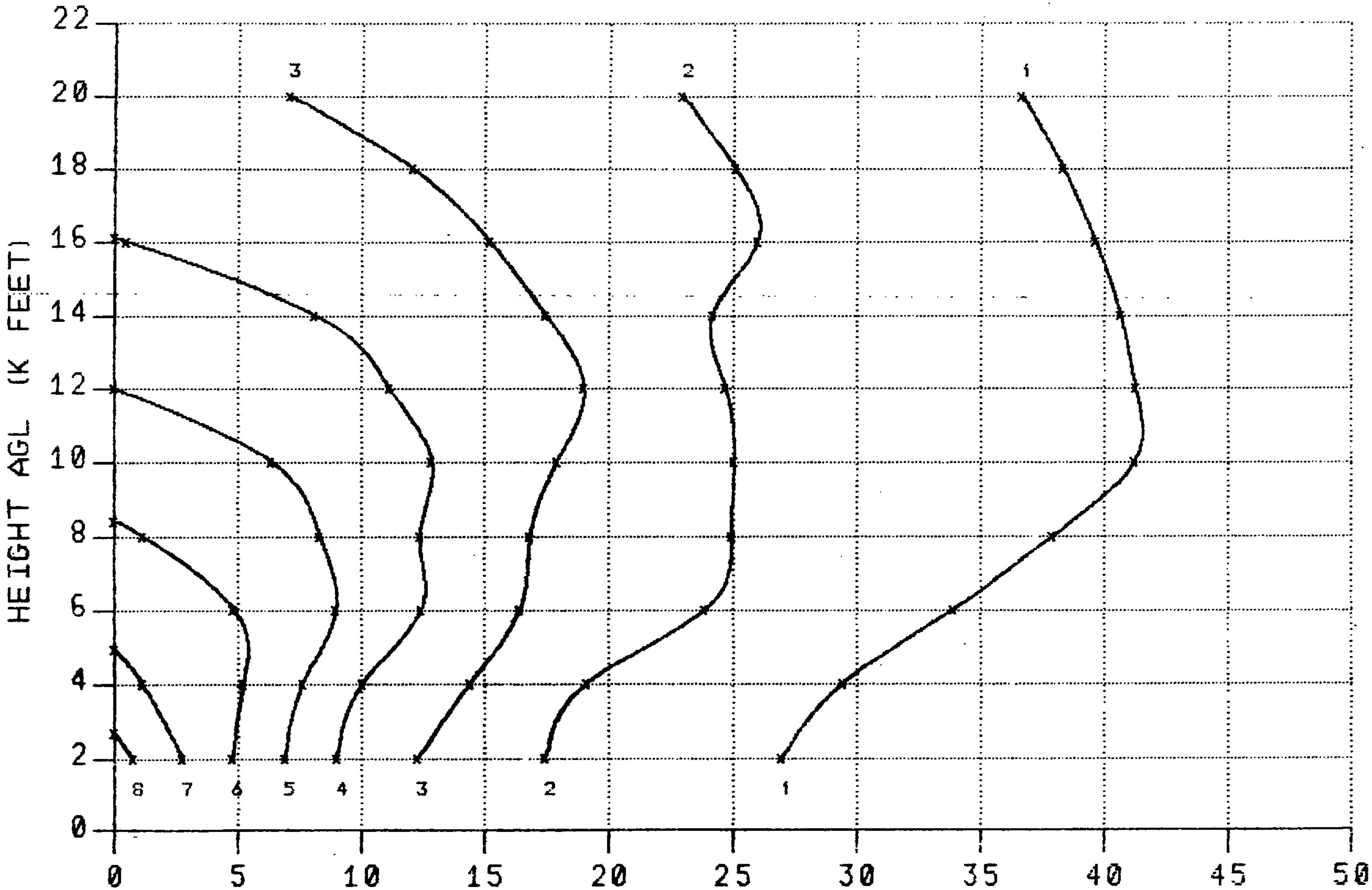
CLOUD COVER: CLR-SCT

BKGND. REFLECTANCE: 15 TO 49 PERCENT
SOLAR ELEV. ANGLE : 11 TO 30 DEGREE
SURFACE VISIBILITY: 7 MILES (11.3 KM)
MIXING LYR. DEPTH : 3000 FEET



CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

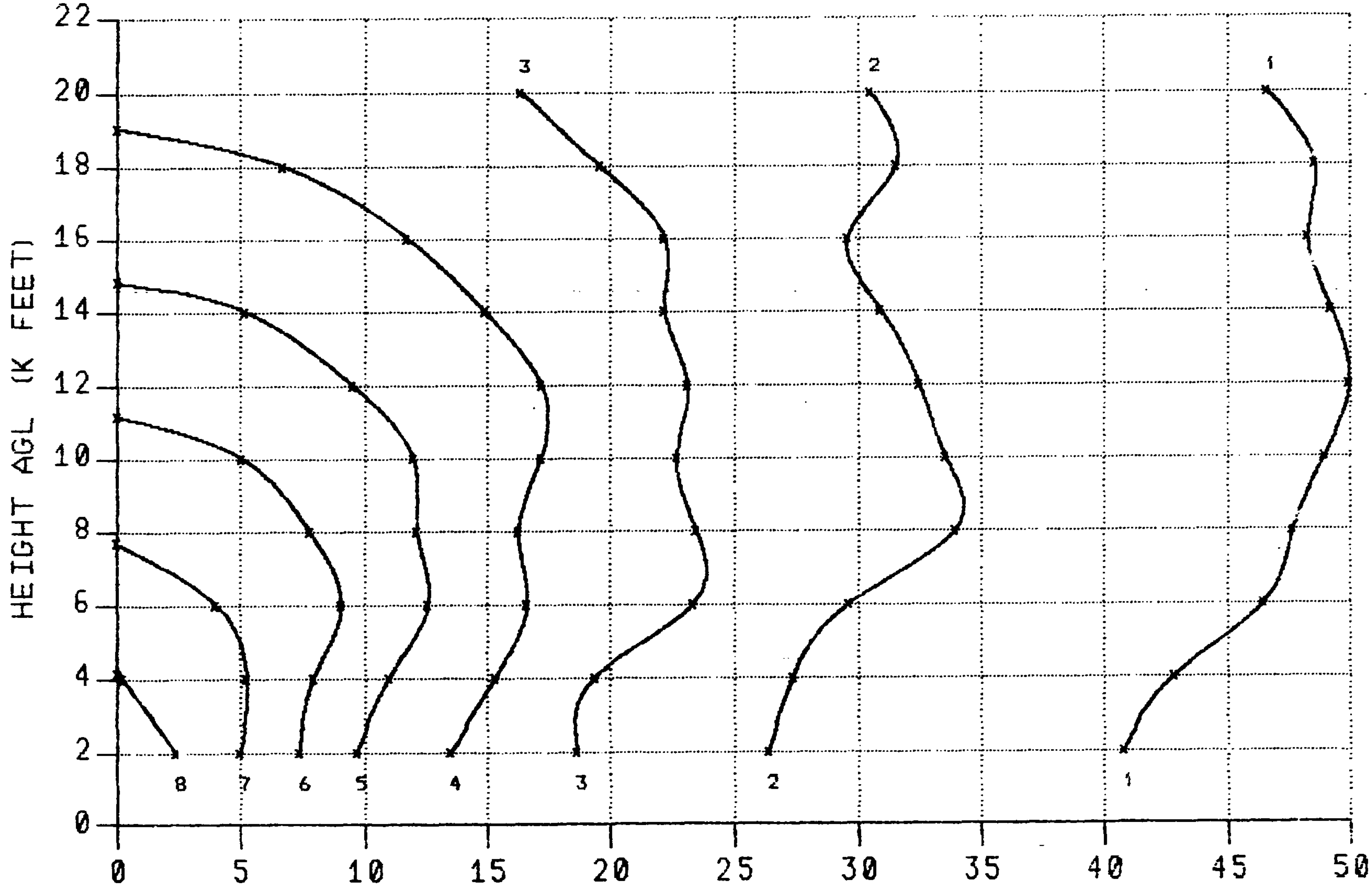
CLOUD COVER: CLR-SCT
BKGND. REFLECTANCE: 15 TO 49 PERCENT
SOLAR ELEV. ANGLE : 11 TO 30 DEGREE
SURFACE VISIBILITY: 10 MILES (16.1 KM)
MIXING LYR. DEPTH : 3000 FEET



GROUND RANGE (K FEET)
CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

CLOUD COVER: CLR-SCT

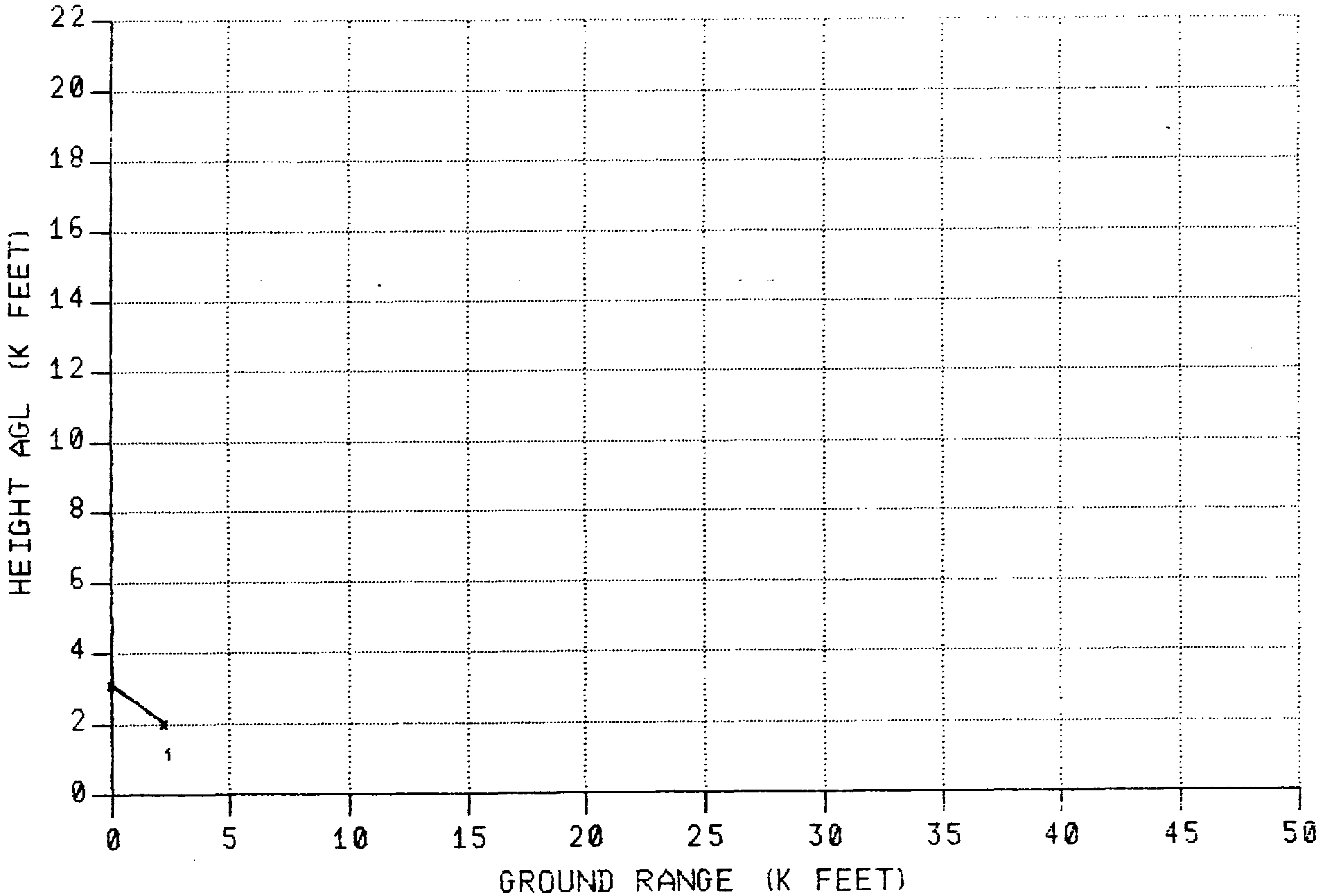
BKGND. REFLECTANCE: 15 TO 49 PERCENT
SOLAR ELEV. ANGLE : 11 TO 30 DEGREE
SURFACE VISIBILITY: 15 MILES (24.1 KM)
MIXING LYR. DEPTH : 3000 FEET



CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

CLOUD COVER: CLR-SCT

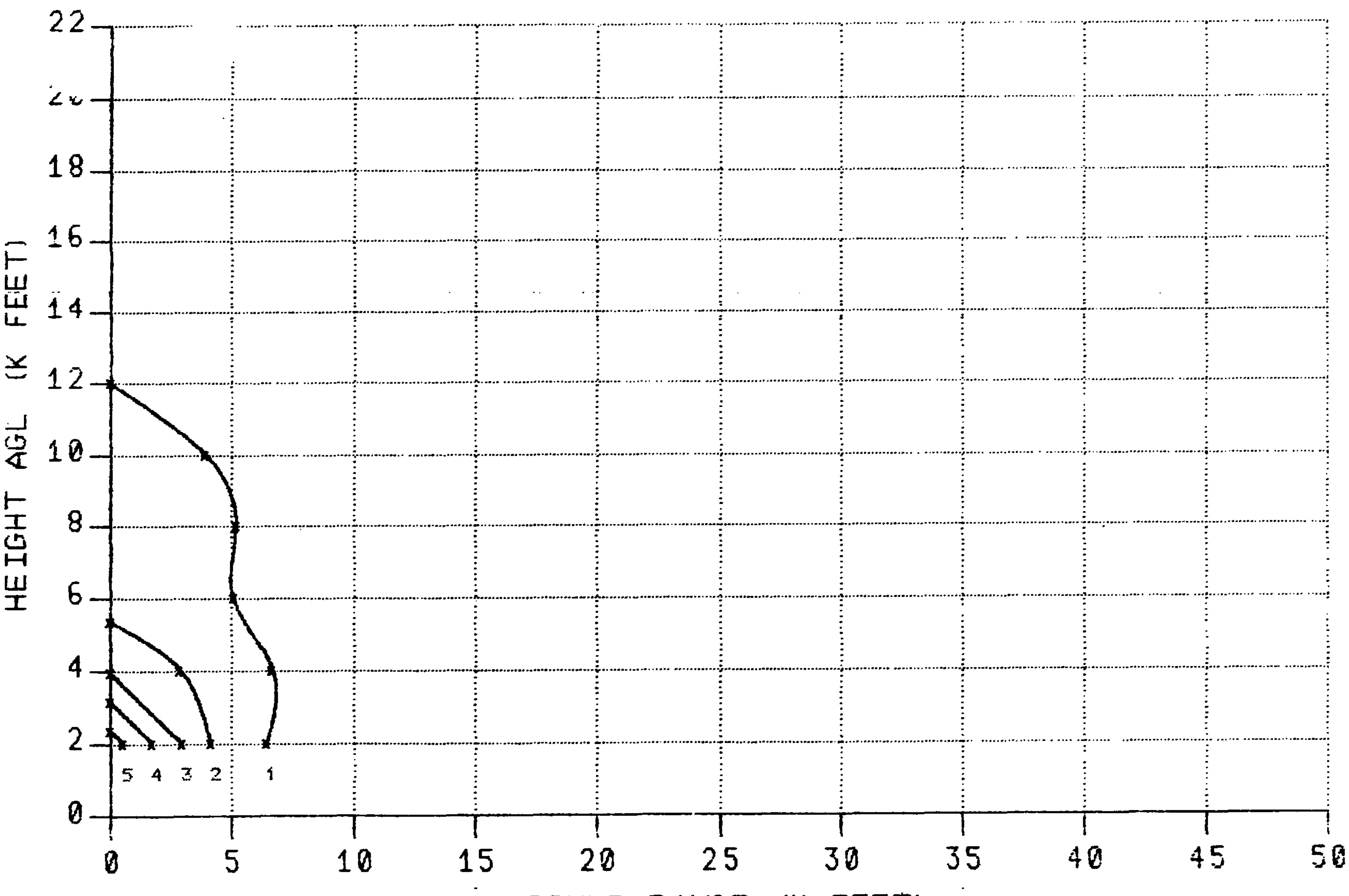
BKGND. REFLECTANCE: 15 TO 49 PERCENT
SOLAR ELEV. ANGLE : 11 TO 30 DEGREE
SURFACE VISIBILITY: 1 MILE (1.6 KM)
MIXING LYR. DEPTH : 6000 FEET



CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

CLOUD COVER: CLR-SCT

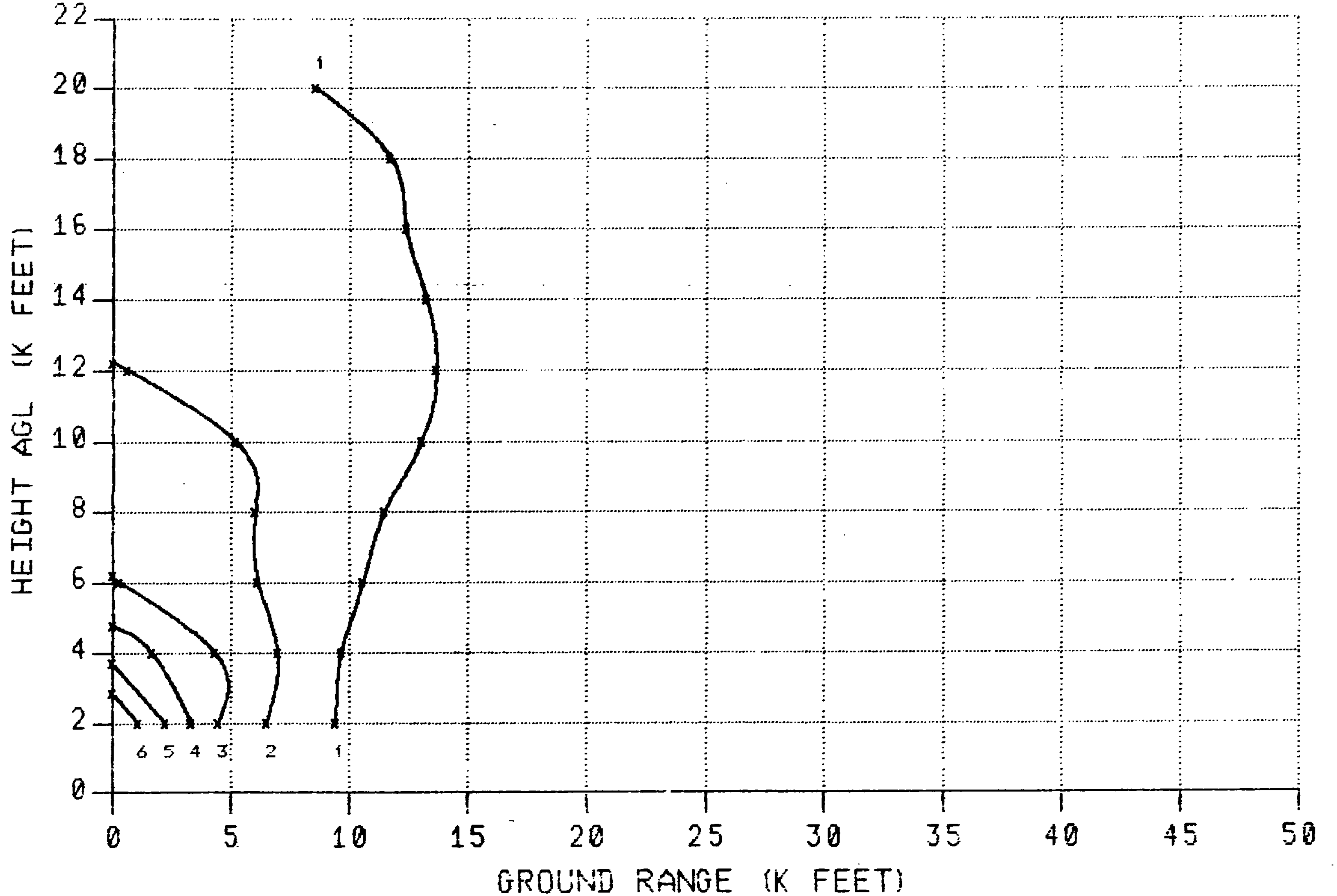
BKGND. REFLECTANCE: 15 TO 49 PERCENT
SOLAR ELEV. ANGLE : 11 TO 30 DEGREE
SURFACE VISIBILITY: 3 MILES (4.8 KM)
MIXING LYR. DEPTH : 6000 FEET



CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

CLOUD COVER: CLR-SCT

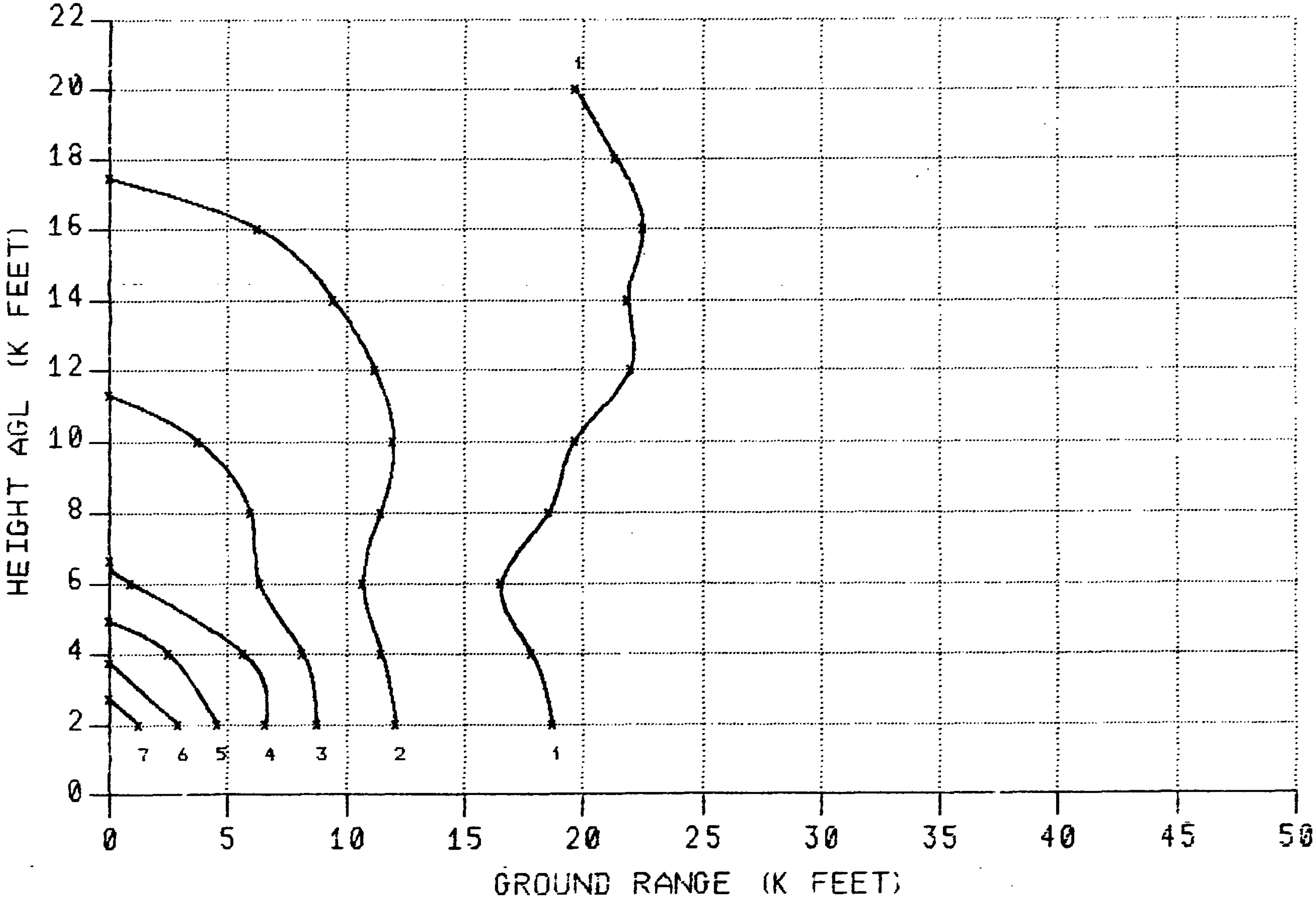
BKGND. REFLECTANCE: 15 TO 49 PERCENT
SOLAR ELEV. ANGLE : 11 TO 30 DEGREE
SURFACE VISIBILITY: 5 MILES (8.0 KM)
MIXING LYR. DEPTH : 6000 FEET



CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

CLOUD COVER: CLR-SCT

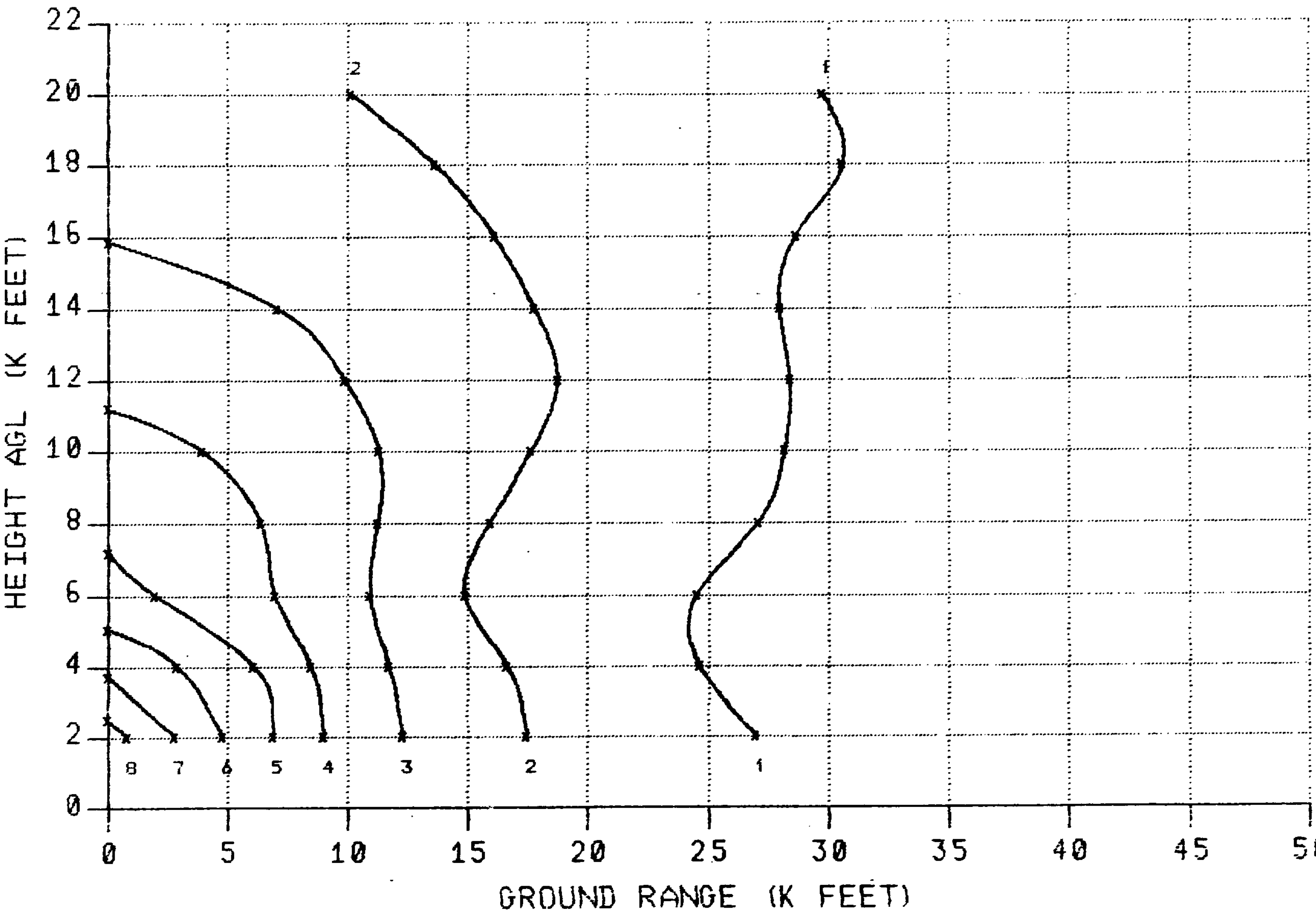
BKGND. REFLECTANCE: 15 TO 49 PERCENT
SOLAR ELEV. ANGLE : 11 TO 30 DEGREE
SURFACE VISIBILITY: 7 MILES (11.3 KM)
MIXING LYR. DEPTH : 6000 FEET



CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

CLOUD COVER: CLR-SCT

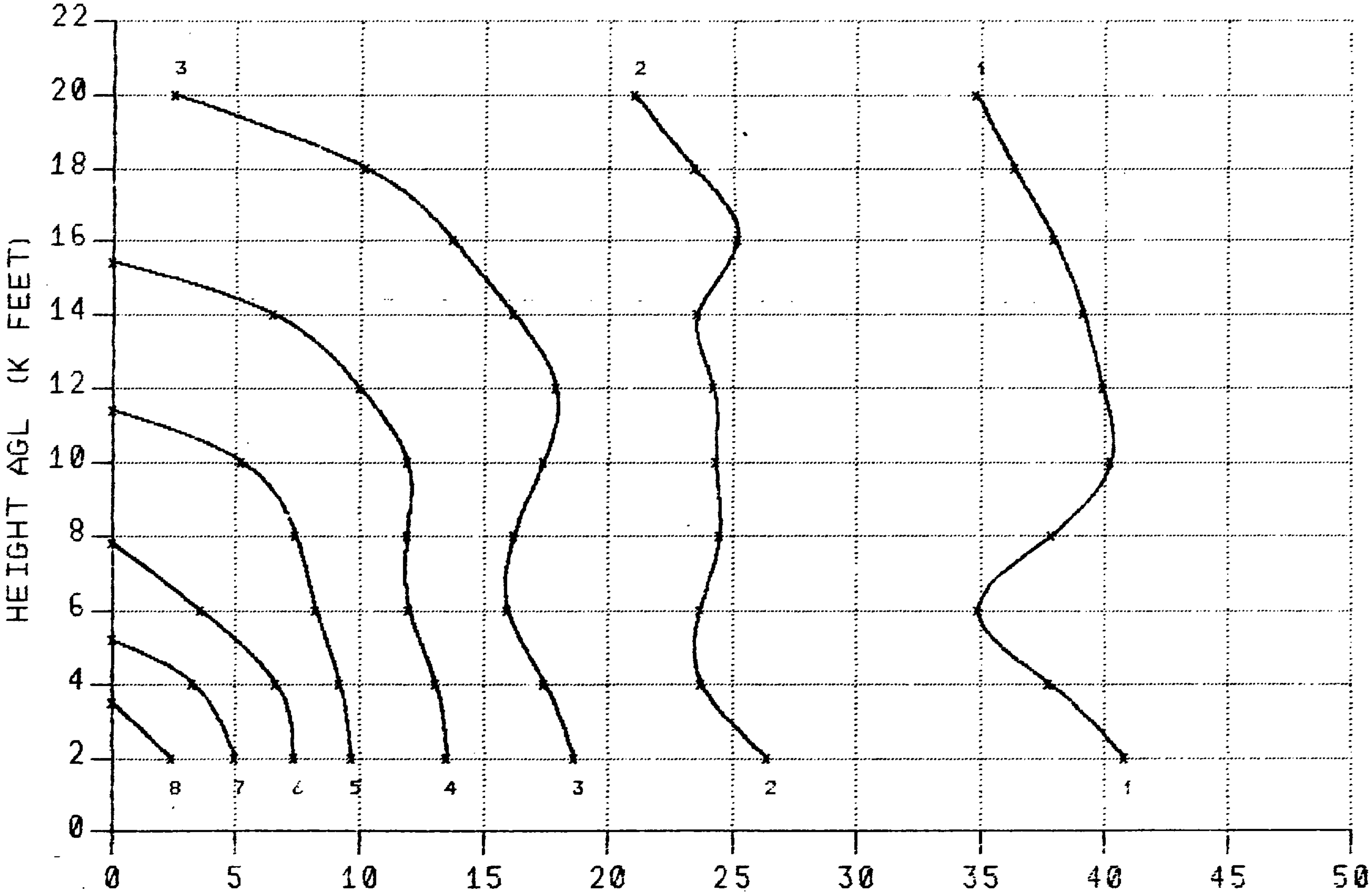
BKGND. REFLECTANCE: 15 TO 49 PERCENT
SOLAR ELEV. ANGLE : 11 TO 30 DEGREE
SURFACE VISIBILITY: 10 MILES (16.1 KM)
MIXING LYR. DEPTH : 6000 FEET



CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

CLOUD COVER: CLR-SCT

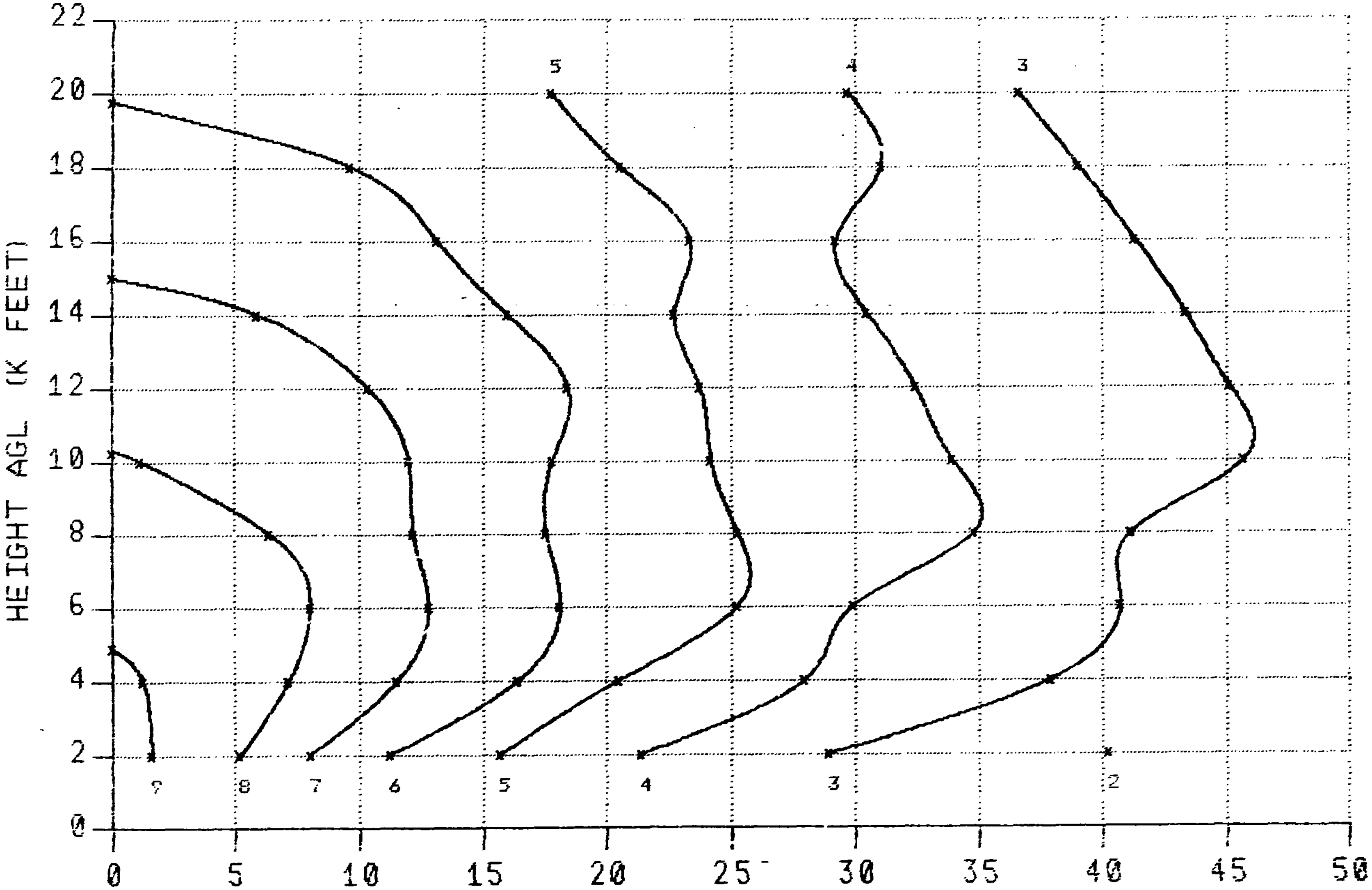
BKGND. REFLECTANCE: 15 TO 49 PERCENT
SOLAR ELEV. ANGLE : 11 TO 30 DEGREE
SURFACE VISIBILITY: 15 MILES (24.1 KM)
MIXING LYR. DEPTH : 6000 FEET



CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

CLOUD COVER: CLR-SCT

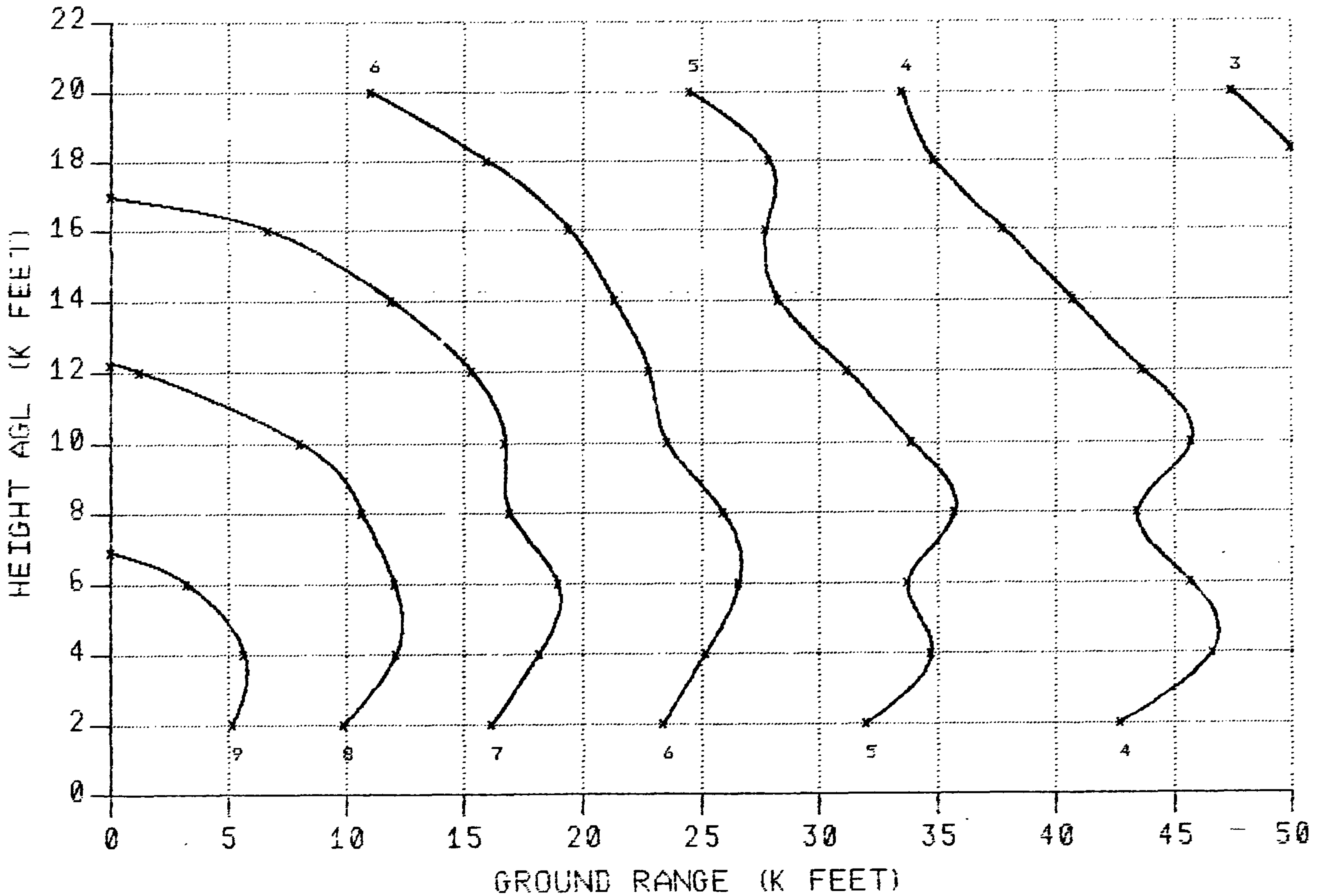
BKGND. REFLECTANCE: 15 TO 49 PERCENT
SOLAR ELEV. ANGLE : 31 TO 55 DEGREE
SURFACE VISIBILITY: 1 MILE (1.6 KM)
MIXING LYR. DEPTH : BELOW 50 FEET



GROUND RANGE (K FEET)
CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

CLOUD COVER: CLR-SCT

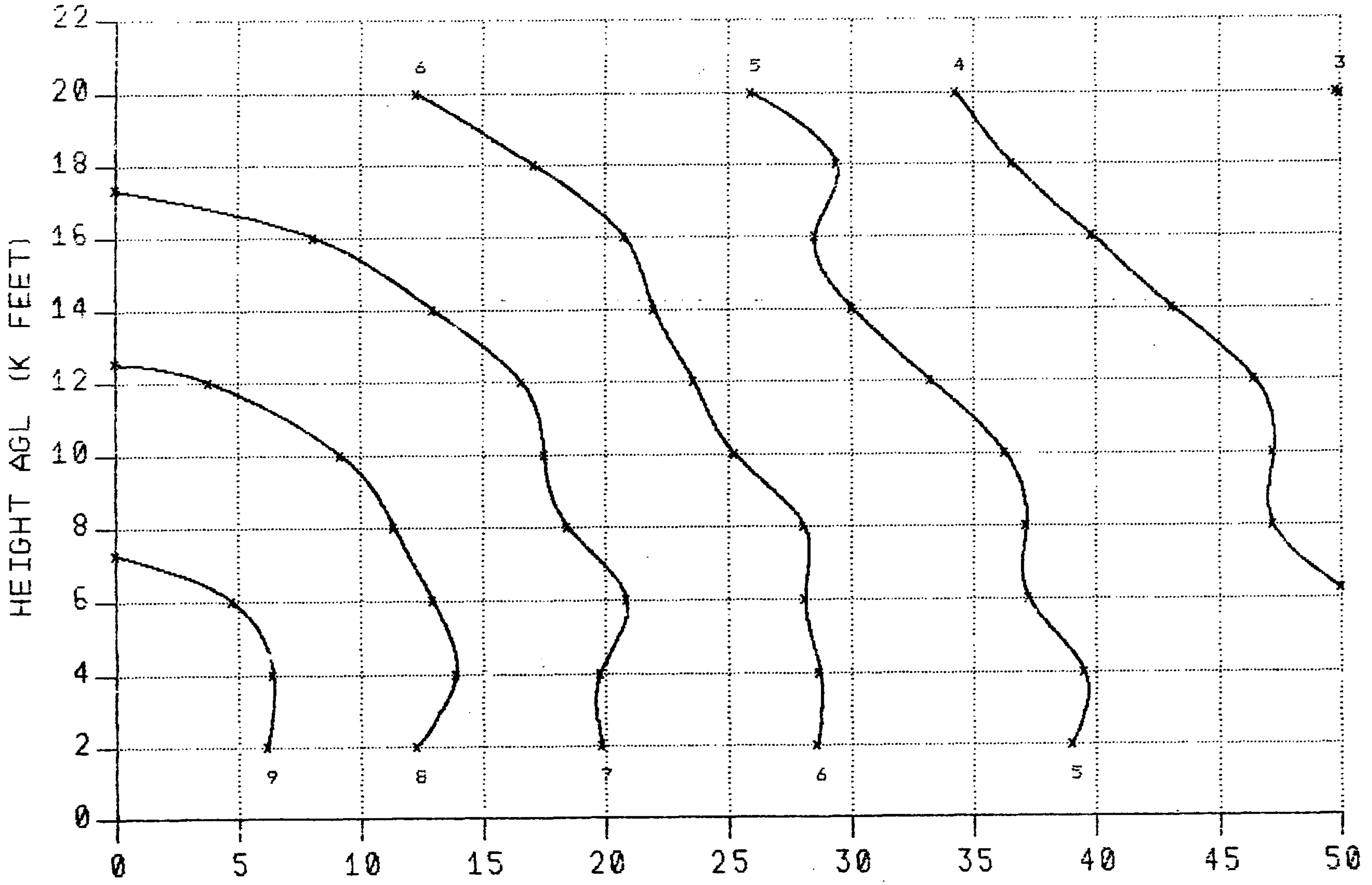
BKGND. REFLECTANCE: 15 TO 49 PERCENT
SOLAR ELEV. ANGLE : 31 TO 55 DEGREE
SURFACE VISIBILITY: 3 MILES (4.8 KM)
MIXING LYR. DEPTH : BELOW 50 FEET



CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

CLOUD COVER: CLR-SCT

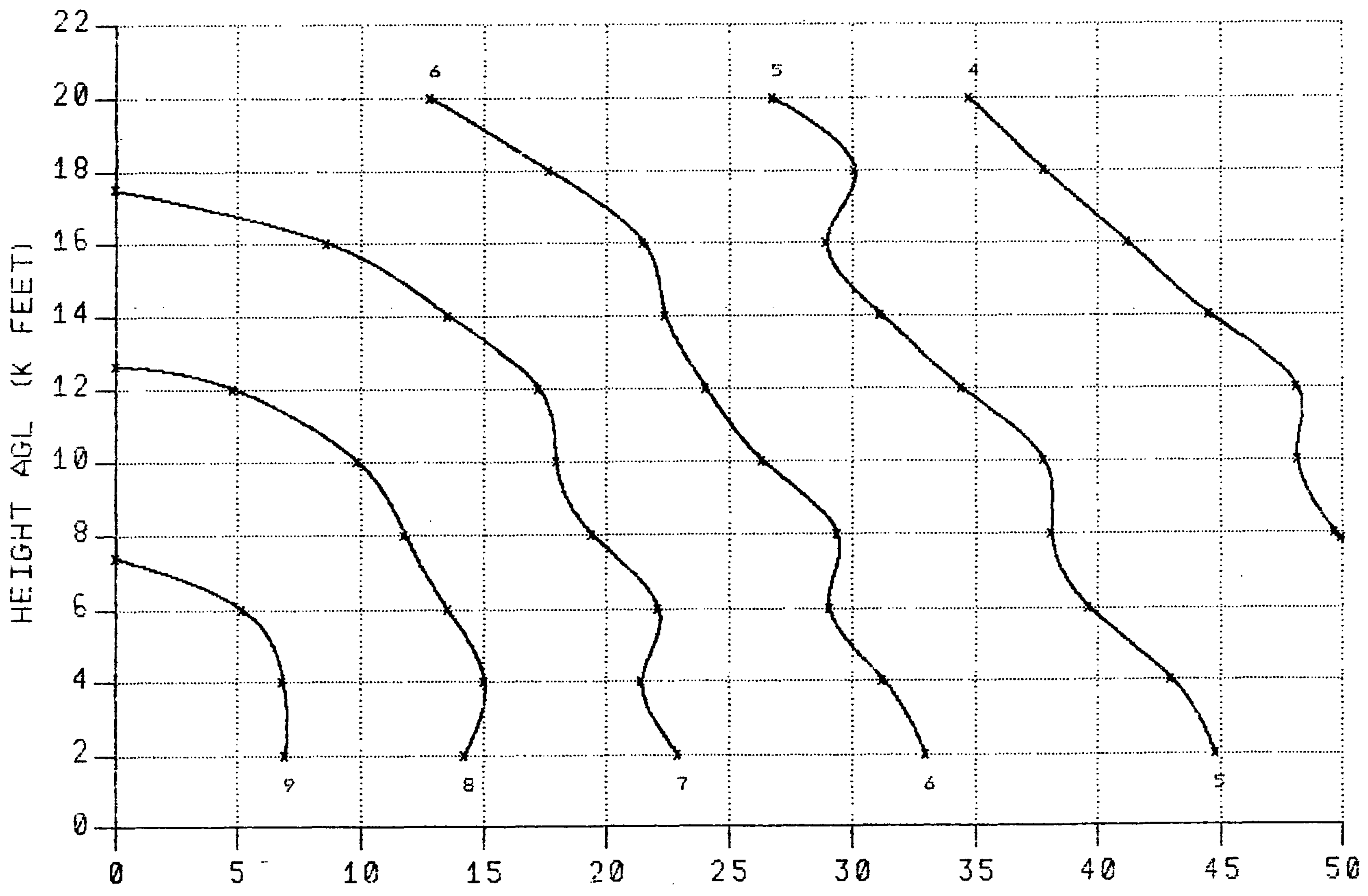
BKGND. REFLECTANCE: 15 TO 49 PERCENT
SOLAR ELEV. ANGLE : 31 TO 55 DEGREE
SURFACE VISIBILITY: 5 MILES (8.0 KM)
MIXING LYR. DEPTH : BELOW 50 FEET



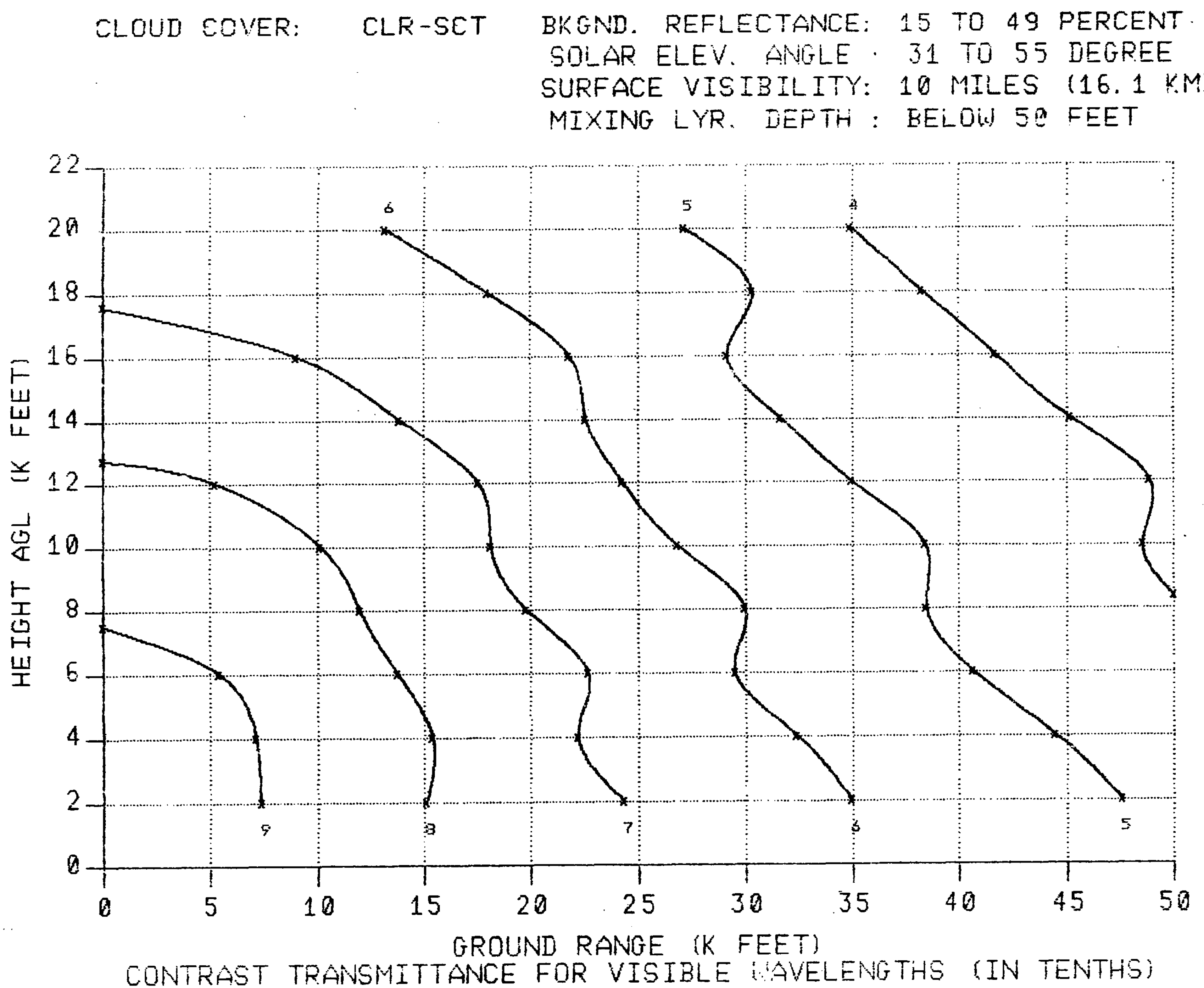
CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

CLOUD COVER: CLR-SCT

BKGND. REFLECTANCE: 15 TO 49 PERCENT
SOLAR ELEV. ANGLE : 31 TO 55 DEGREE
SURFACE VISIBILITY: 7 MILES (11.3 KM)
MIXING LYR. DEPTH : BELOW 50 FEET

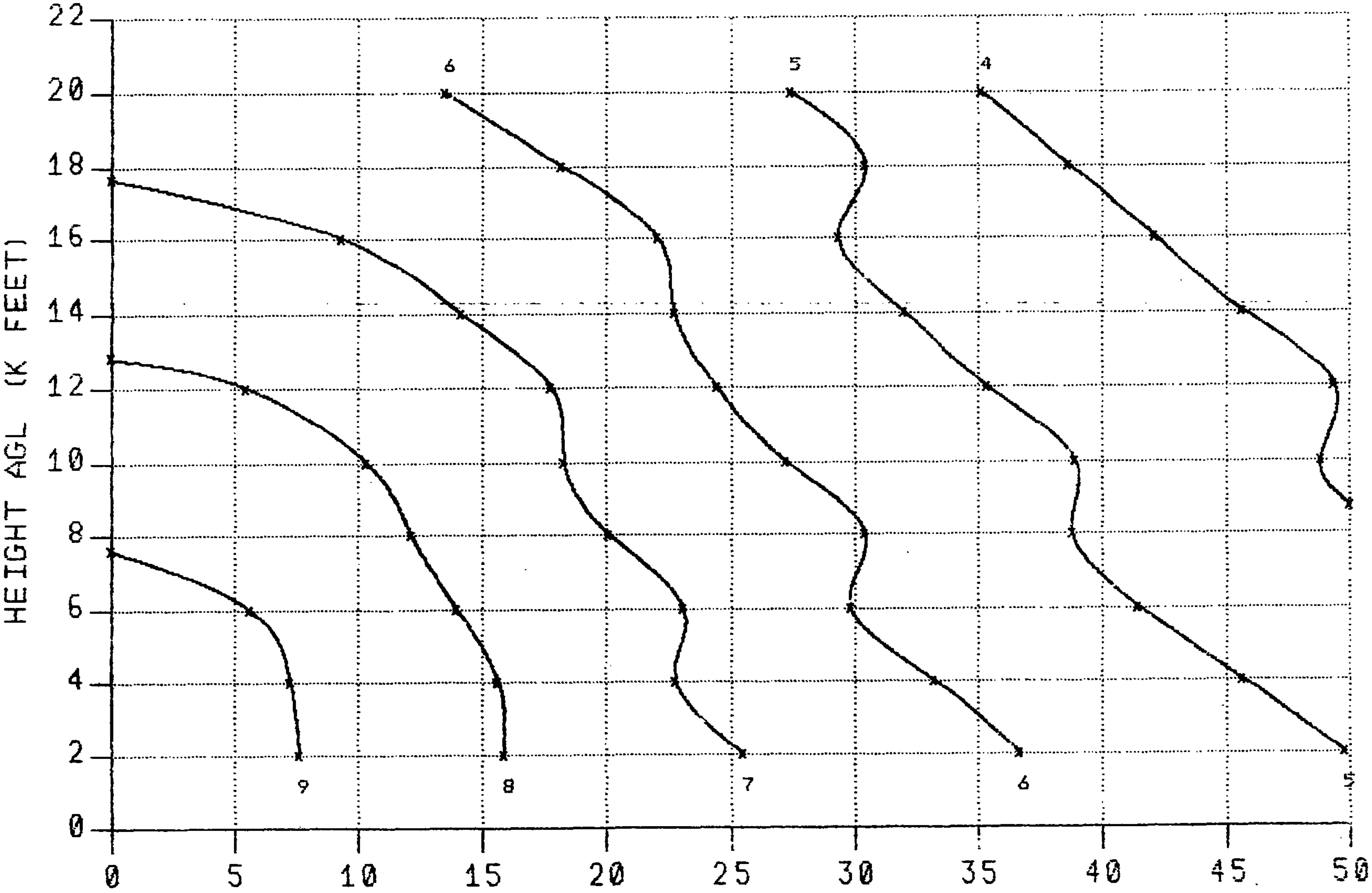


CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)


CLOUD COVER: CLR-SCT
BKGND. REFLECTANCE: 15 TO 49 PERCENT
SOLAR ELEV. ANGLE 31 TO 55 DEGREE
SURFACE VISIBILITY: 10 MILES (16.1 KM)
MIXING LYR. DEPTH : BELOW 50 FEET
HEIGHT AGL (K FEET)
0
2
4
6
8
10
12
14
16
18
20
22
0
5
10
15
20
25
30
35
40
45
50
9
8
7
6
5
6
5
4
GROUND RANGE (K FEET)
CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

CLOUD COVER: CLR-SCT

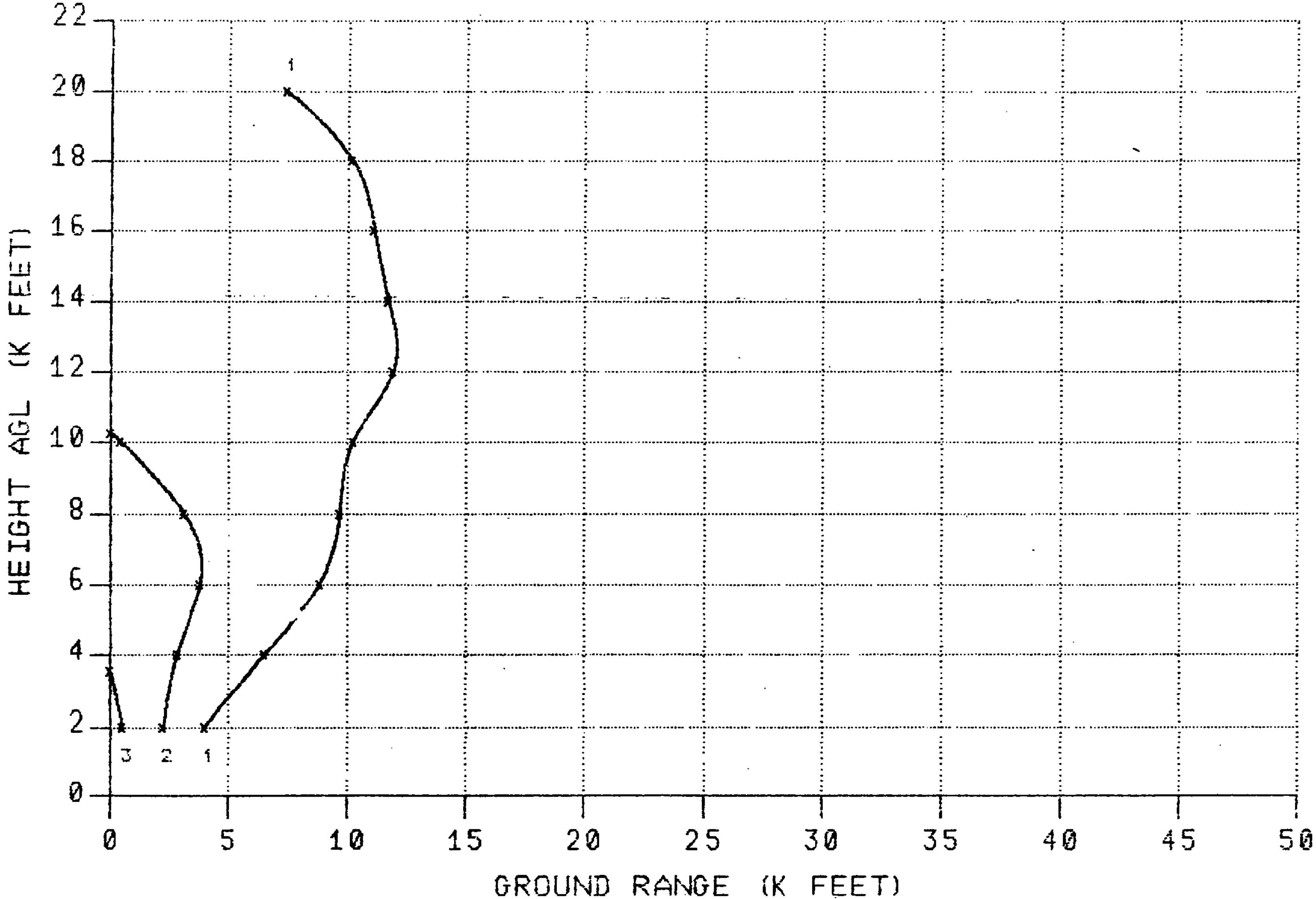
BKGND. REFLECTANCE: 15 TO 49 PERCENT
SOLAR ELEV. ANGLE : 31 TO 55 DEGREE
SURFACE VISIBILITY: 15 MILES (24.1 KM)
MIXING LYR. DEPTH : BELOW 50 FEET



GROUND RANGE (K FEET)
CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

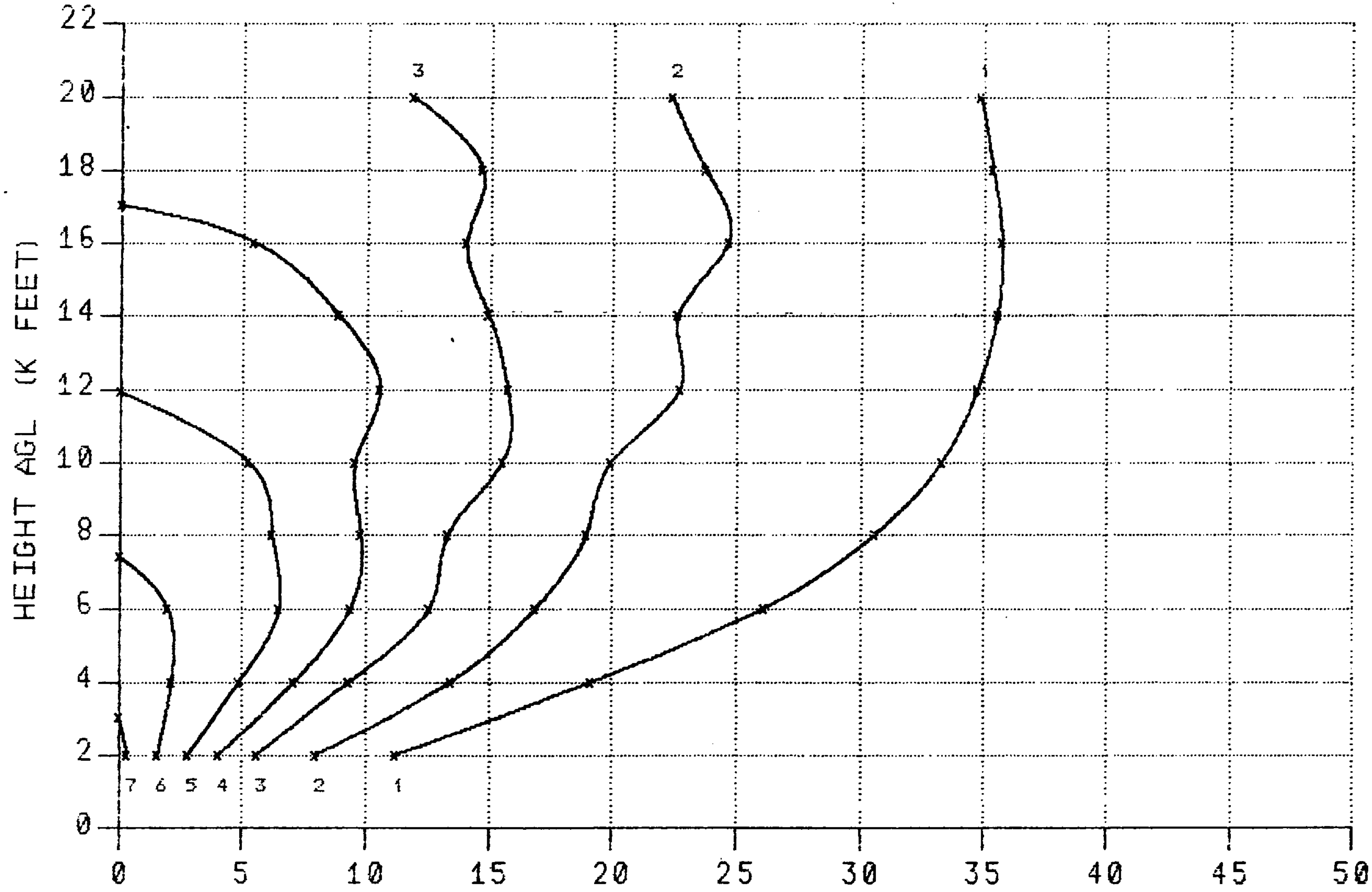
CLOUD COVER: CLR-SCT

BKGND. REFLECTANCE: 15 TO 49 PERCENT
SOLAR ELEV. ANGLE : 31 TO 55 DEGREE
SURFACE VISIBILITY: 1 MILE (1.6 KM)
MIXING LYR. DEPTH : 1500 FEET



CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

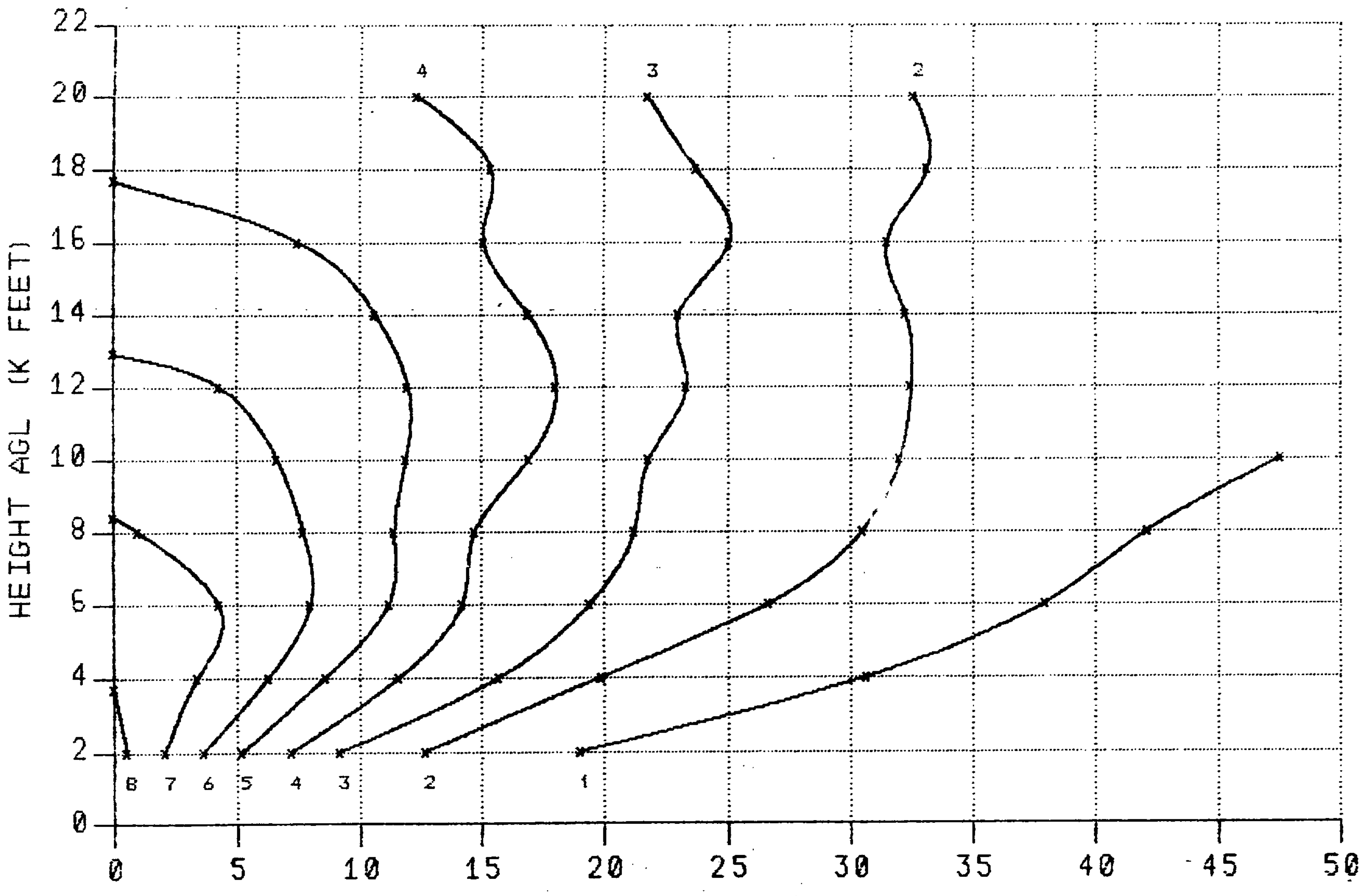
CLOUD COVER: CLR-SCT
BKGND. REFLECTANCE 15 TO 49 PERCENT
SOLAR ELEV. ANGLE : 31 TO 55 DEGREE
SURFACE VISIBILITY: 3 MILES (4.8 KM)
MIXING LYR. DEPTH : 1500 FEET



CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

CLOUD COVER: CLR-SCT

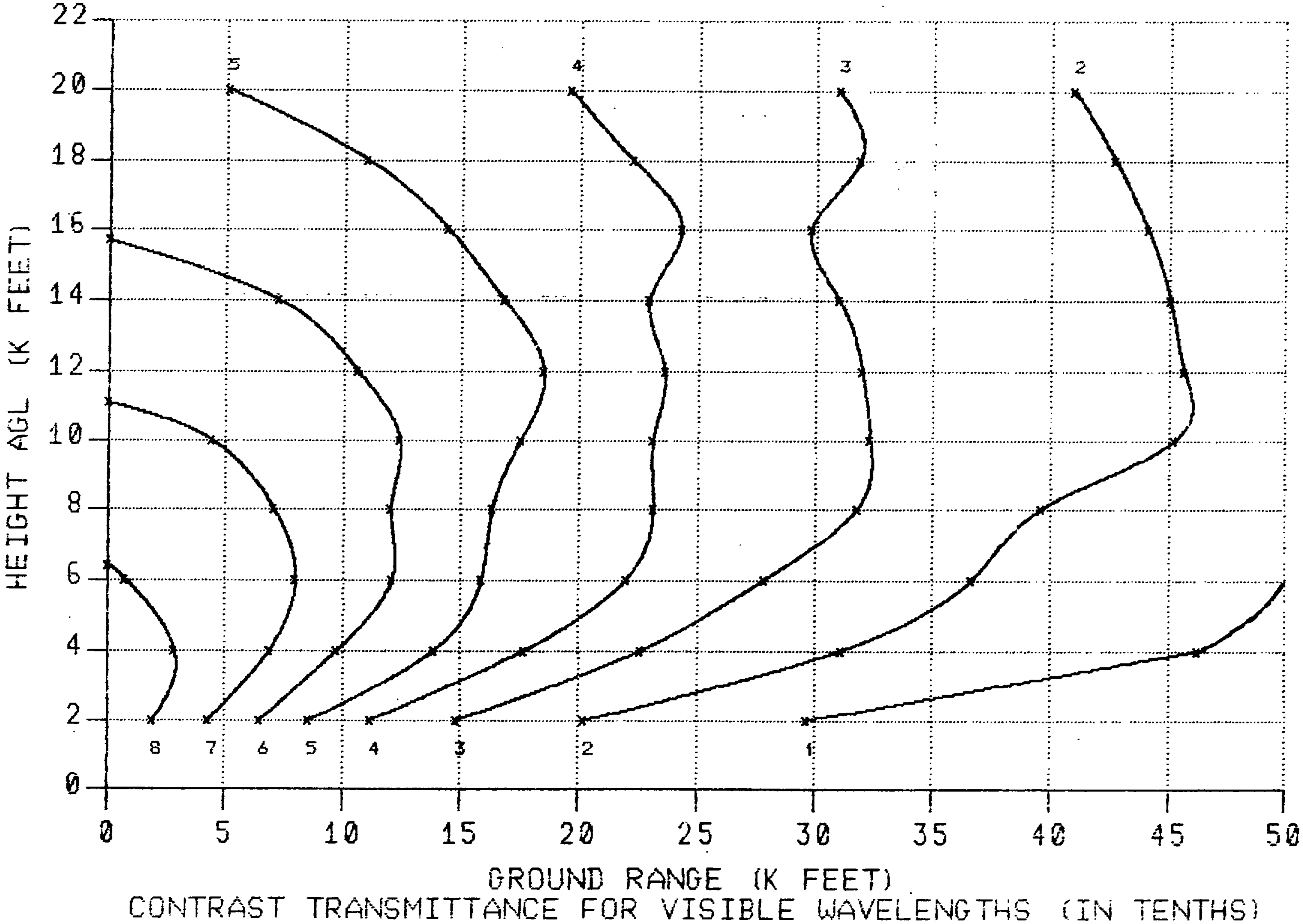
BKGND. REFLECTANCE: 15 TO 49 PERCENT
SOLAR ELEV. ANGLE : 31 TO 55 DEGREE
SURFACE VISIBILITY: 5 MILES (8.0 KM)
MIXING LYR. DEPTH : 1500 FEET



CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

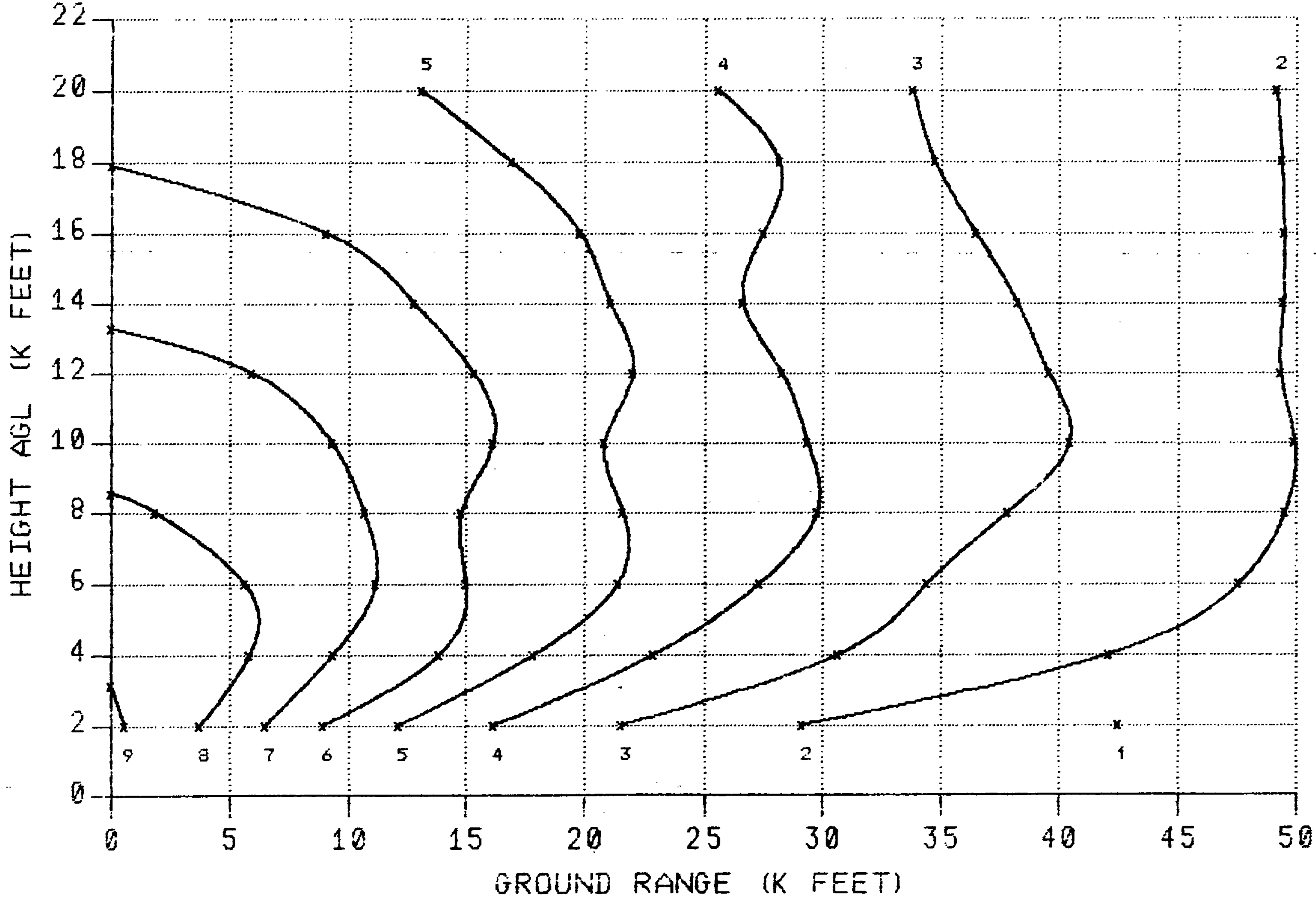
CLOUD COVER: CLR-SCT

BKGND. REFLECTANCE: 15 TO 49 PERCENT
SOLAR ELEV. ANGLE : 31 TO 55 DEGREE
SURFACE VISIBILITY: 7 MILES (11.3 KM)
MIXING LYR. DEPTH : 1500 FEET



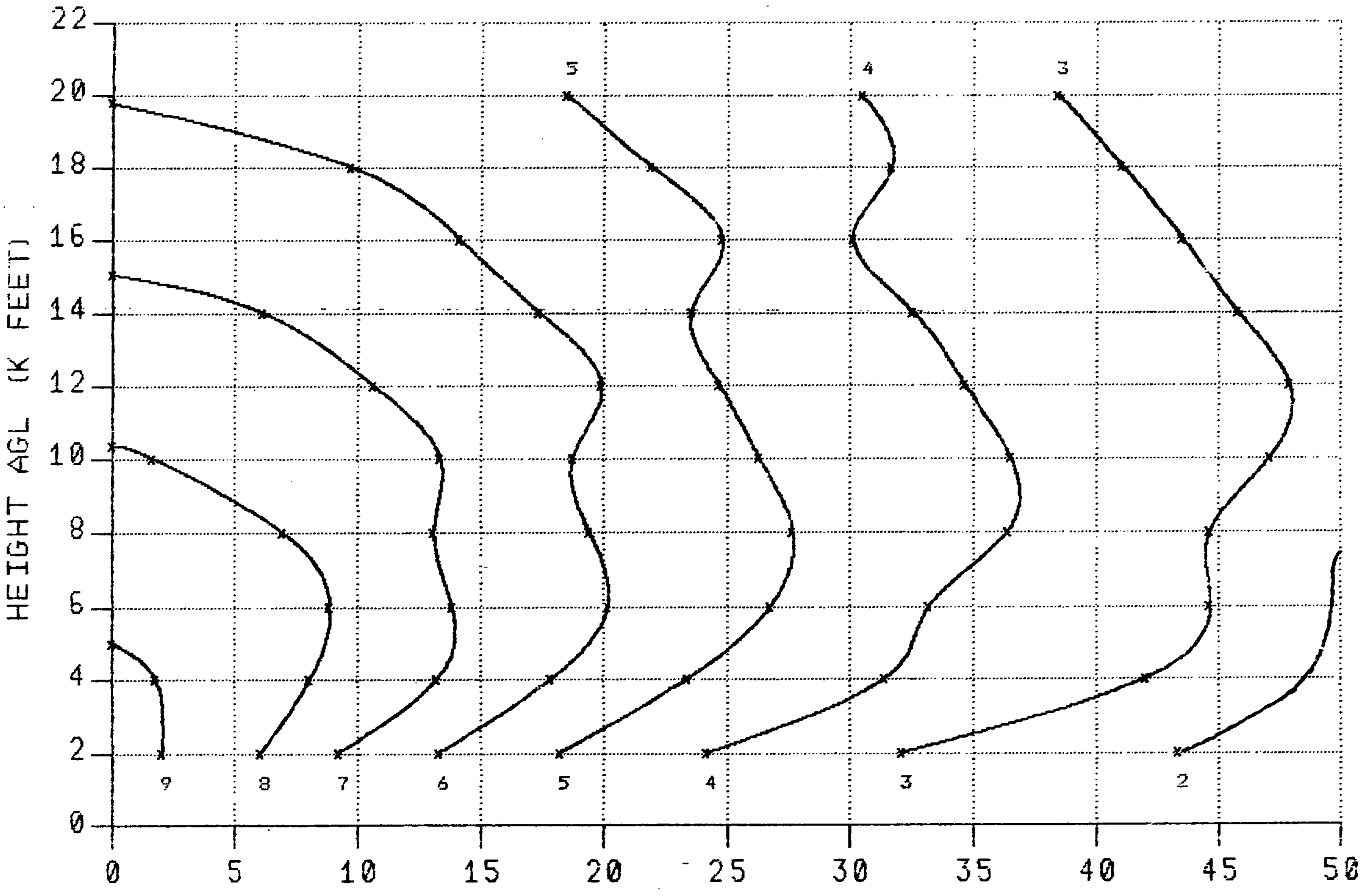
CLOUD COVER: CLR-SCT

BKGND. REFLECTANCE: 15 TO 49 PERCENT
SOLAR ELEV. ANGLE : 31 TO 55 DEGREE
SURFACE VISIBILITY: 10 MILES (16.1 KM)
MIXING LYR. DEPTH : 1500 FEET



CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

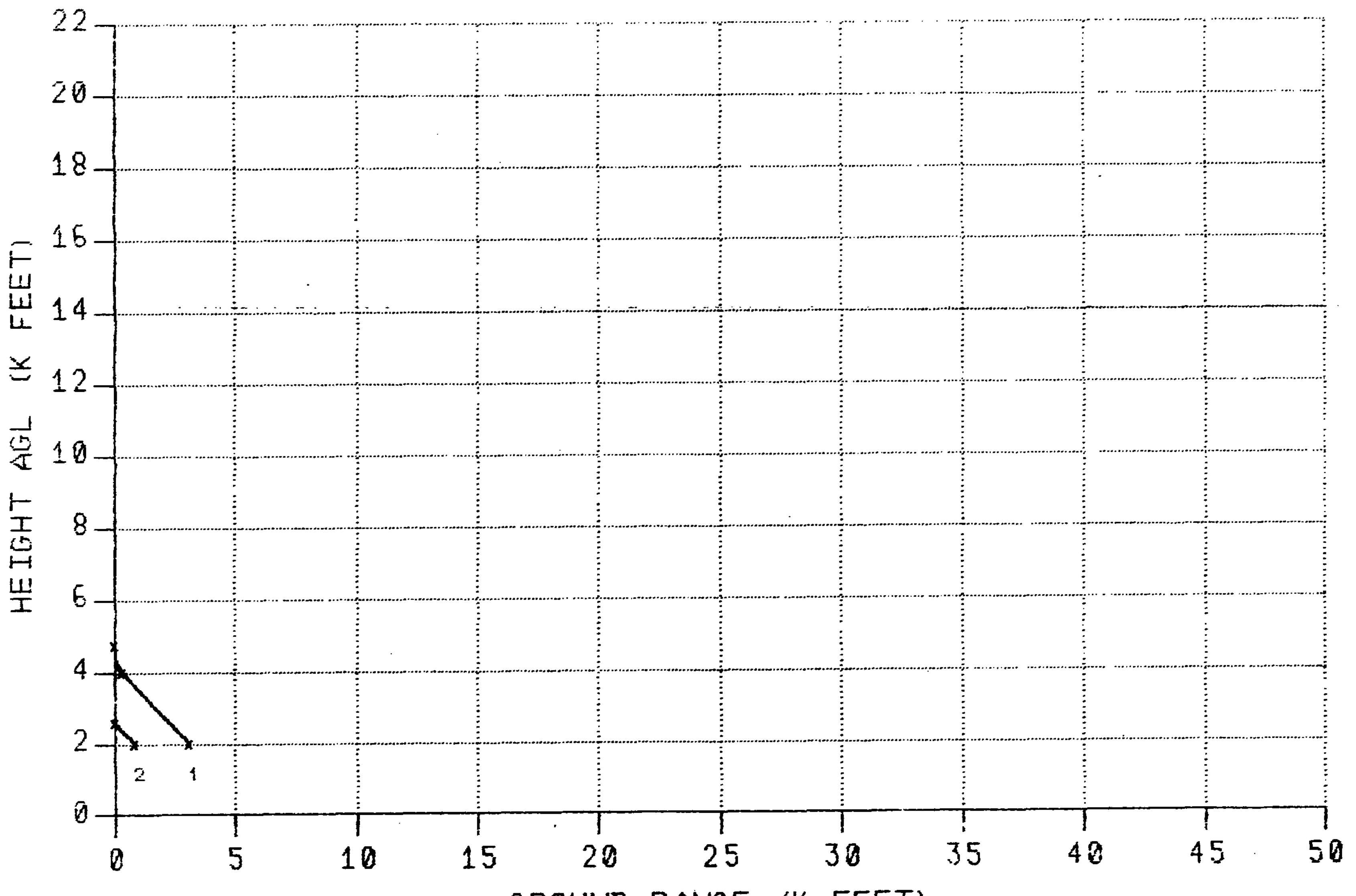
CLOUD COVER: CLR-SCT BKGND. REFLECTANCE: 15 TO 49 PERCENT
SOLAR ELEV. ANGLE : 31 TO 55 DEGREE
SURFACE VISIBILITY: 15 MILES (24.1 KM)
MIXING LYR. DEPTH : 1500 FEET



CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

CLOUD COVER: CLR-SCT

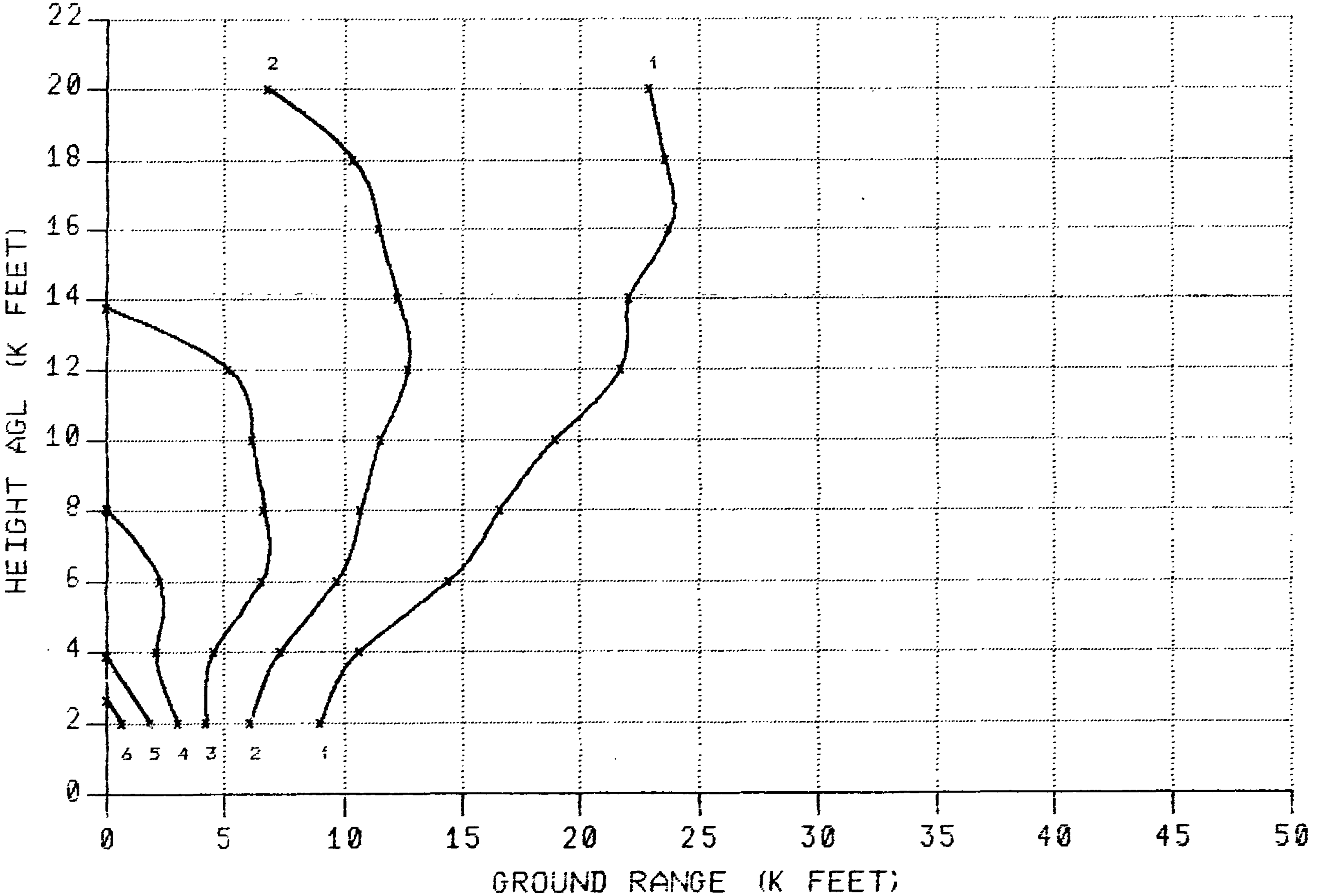
BKGND. REFLECTANCE: 15 TO 49 PERCENT
SOLAR ELEV. ANGLE : 31 TO 55 DEGREE
SURFACE VISIBILITY: 1 MILE (1.6 KM)
MIXING LYR. DEPTH : 3000 FEET



CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

CLOUD COVER: CLR-SCT

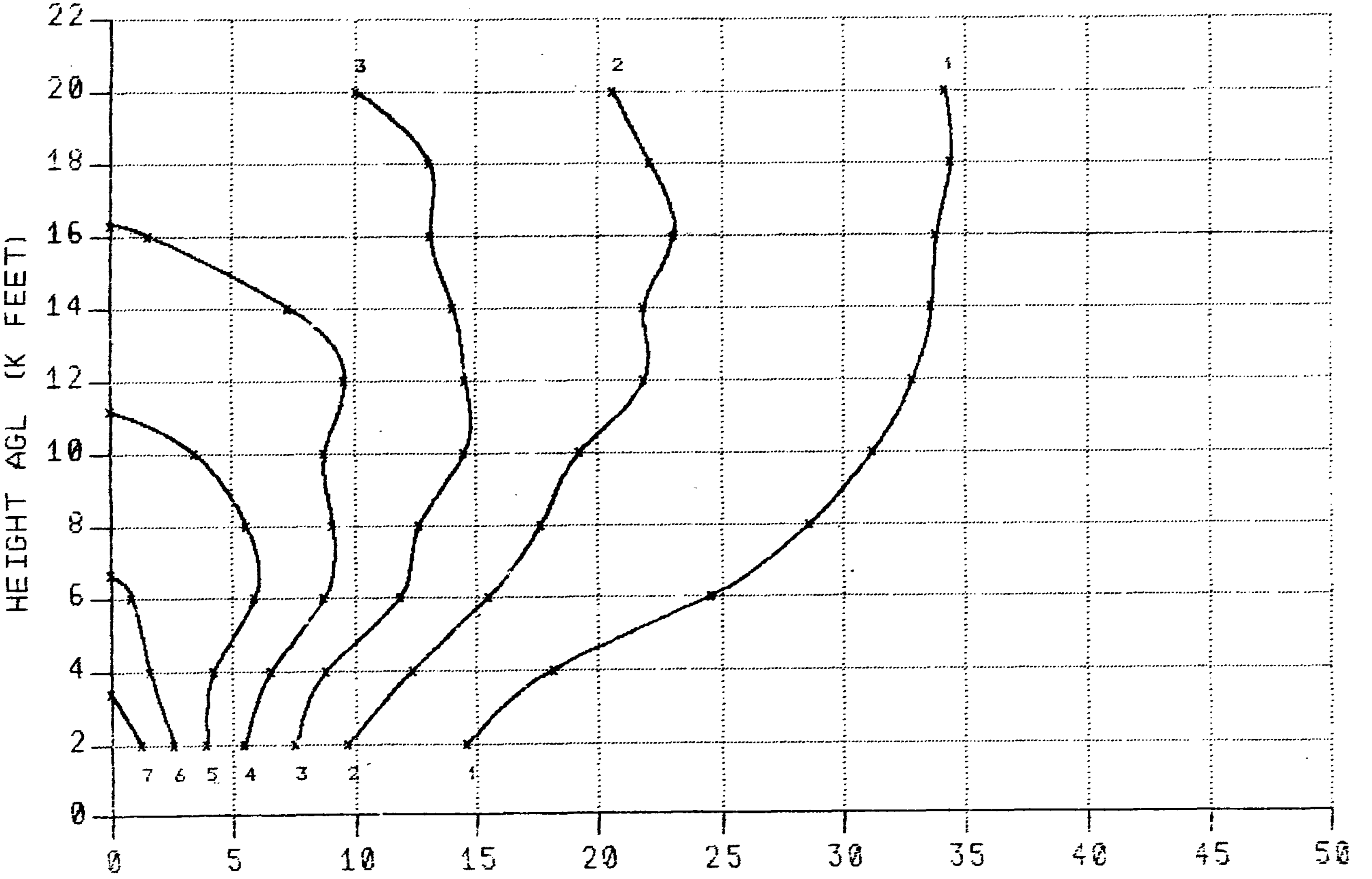
BKGND. REFLECTANCE: 15 TO 49 PERCENT
SOLAR ELEV. ANGLE : 31 TO 55 DEGREE
SURFACE VISIBILITY: 3 MILES (4.8 KM)
MIXING LYR. DEPTH - 3000 FEET



CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

CLOUD COVER: CLR-SCT

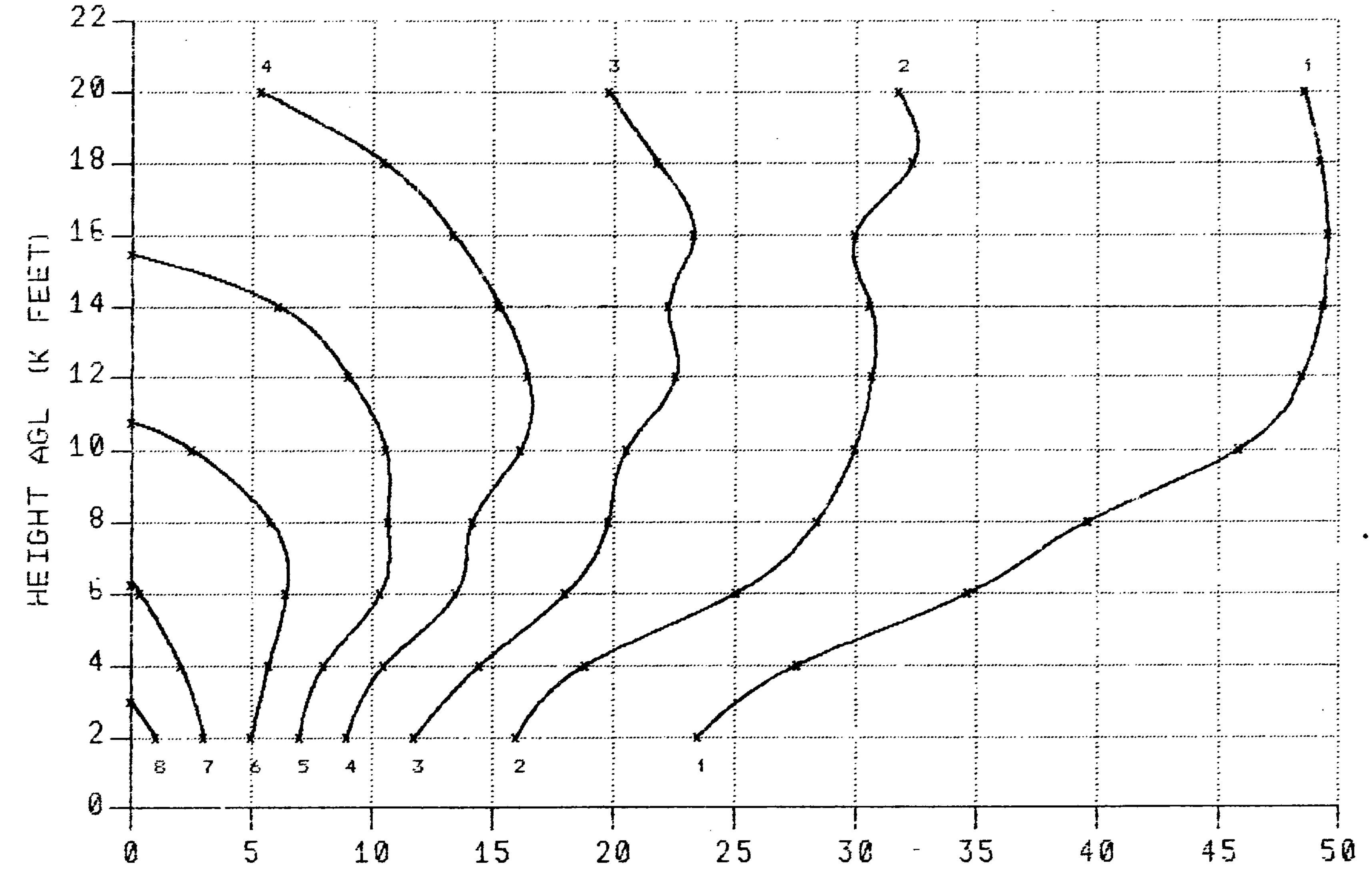
BKGND. REFLECTANCE: 15 TO 49 PERCENT
SOLAR ELEV. ANGLE : 31 TO 55 DEGREE
SURFACE VISIBILITY: 5 MILES (8.0 KM)
MIXING LYR. DEPTH : 3000 FEET



CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

CLOUD COVER: CLR-SCT

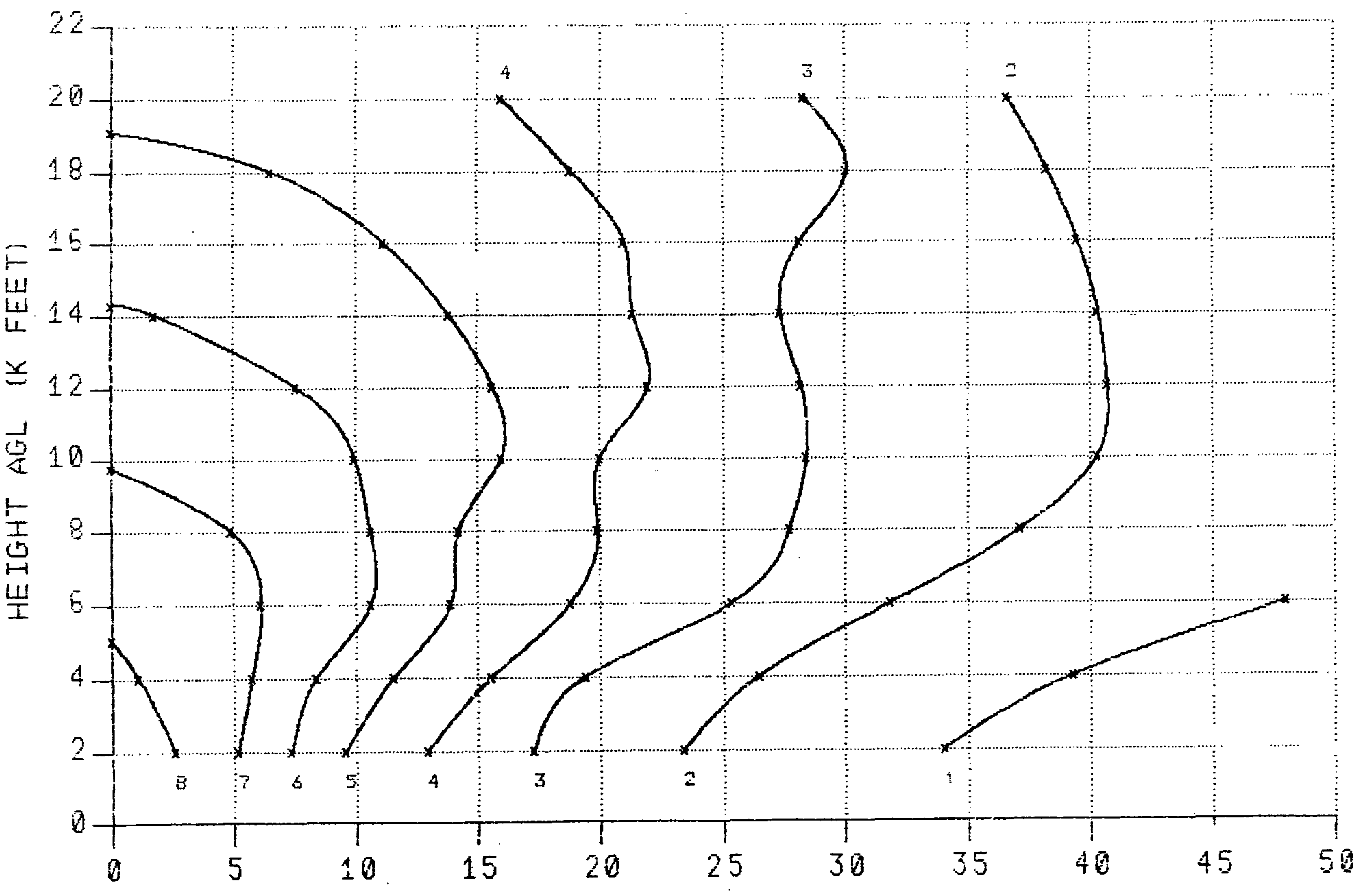
BKGND. REFLECTANCE: 15 TO 49 PERCENT
SOLAR ELEV. ANGLE : 31 TO 55 DEGREE
SURFACE VISIBILITY: 7 MILES (11.3 KM)
MIXING LYR. DEPTH : 3000 FEET



CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

CLOUD COVER: CLR-SCT

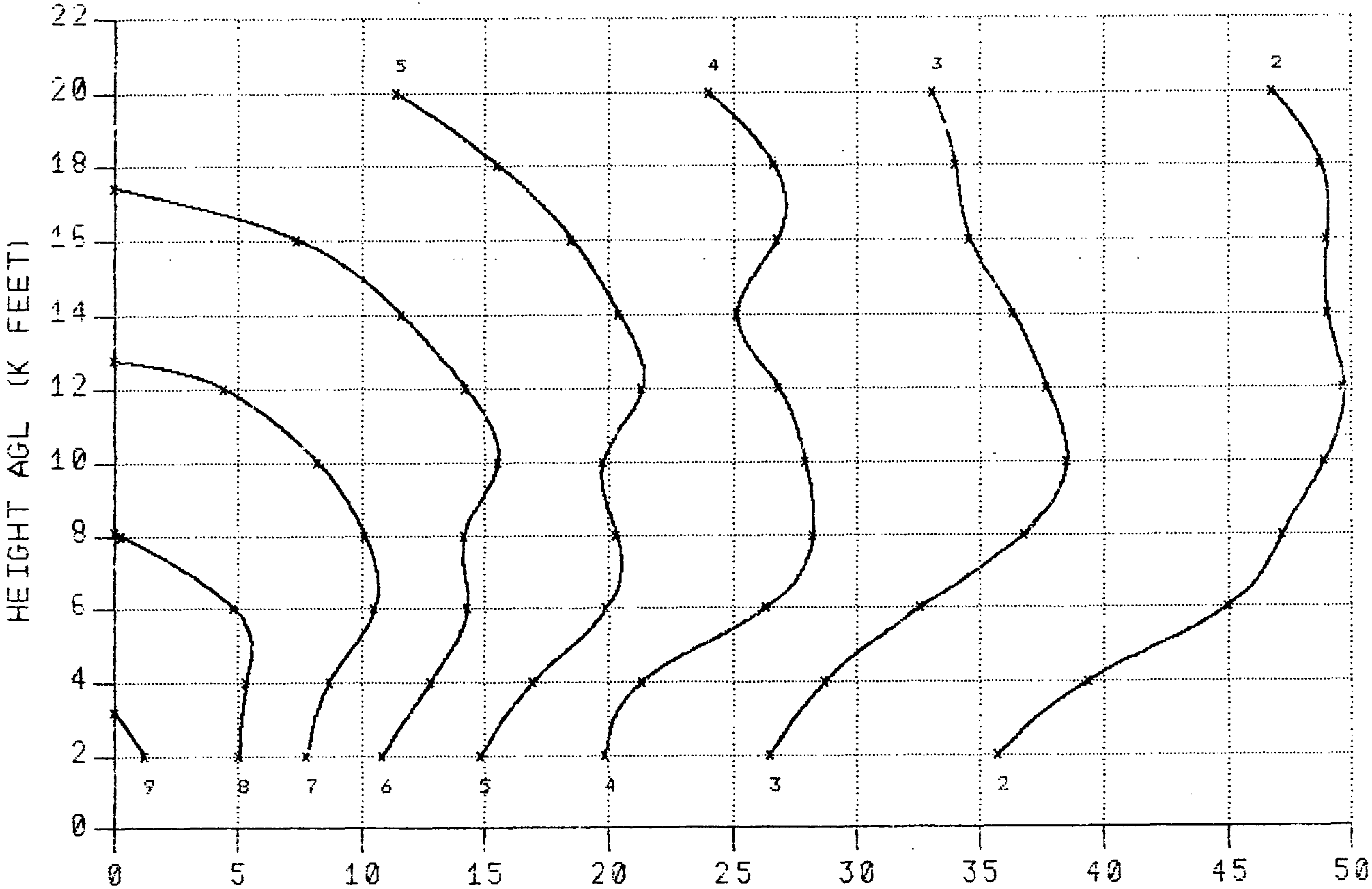
BKGND. REFLECTANCE: 15 TO 49 PERCENT
SOLAR ELEV. ANGLE : 31 TO 55 DEGREE
SURFACE VISIBILITY: 10 MILES (16.1 KM)
MIXING LYR. DEPTH : 3000 FEET



CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

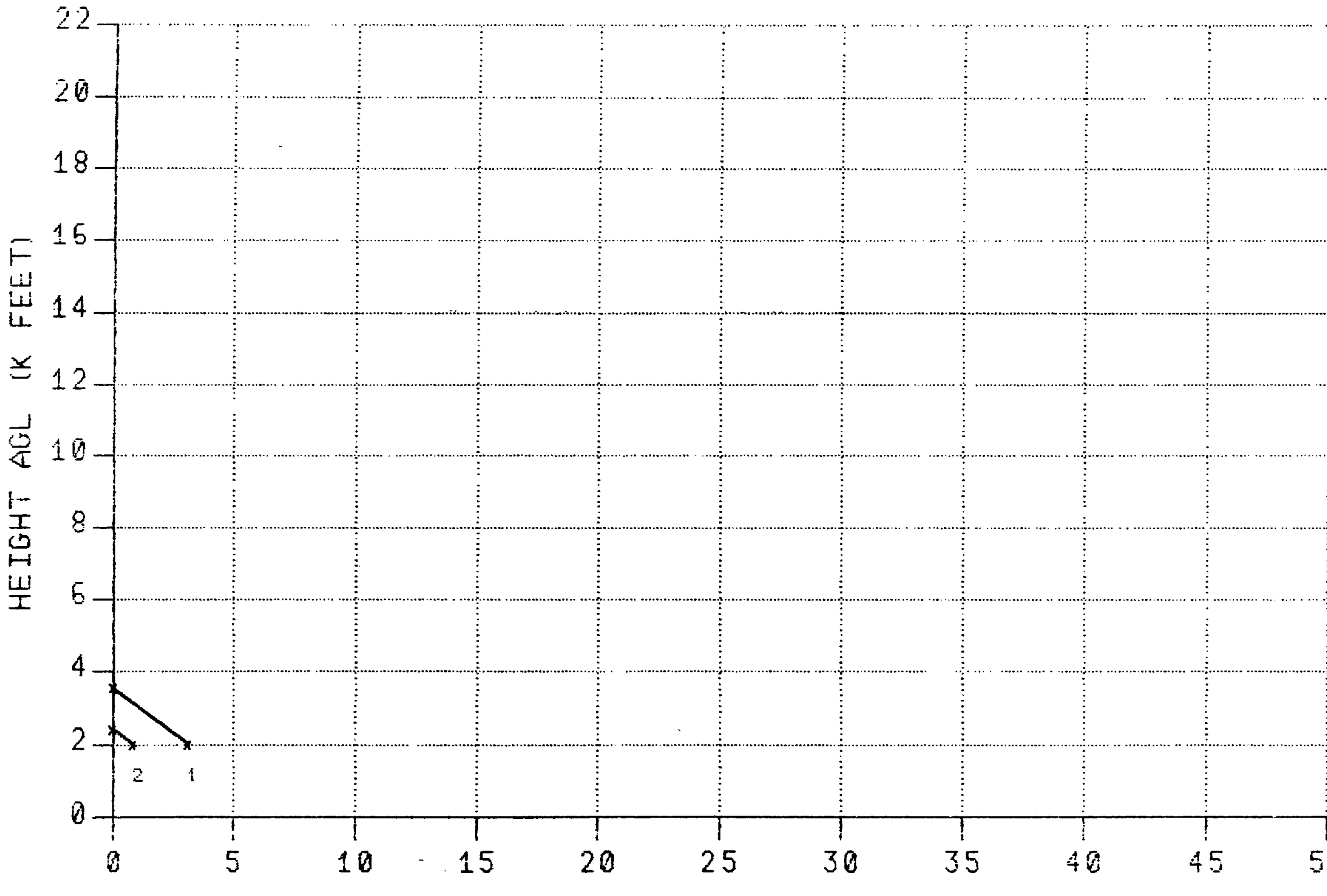
CLOUD COVER: CLR-SCT

BKGND. REFLECTANCE: 15 TO 49 PERCENT
SOLAR ELEV. ANGLE : 31 TO 55 DEGREE
SURFACE VISIBILITY: 15 MILES (24.1 KM)
MIXING LYR. DEPTH : 3000 FEET



GROUND RANGE (K FEET)
CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

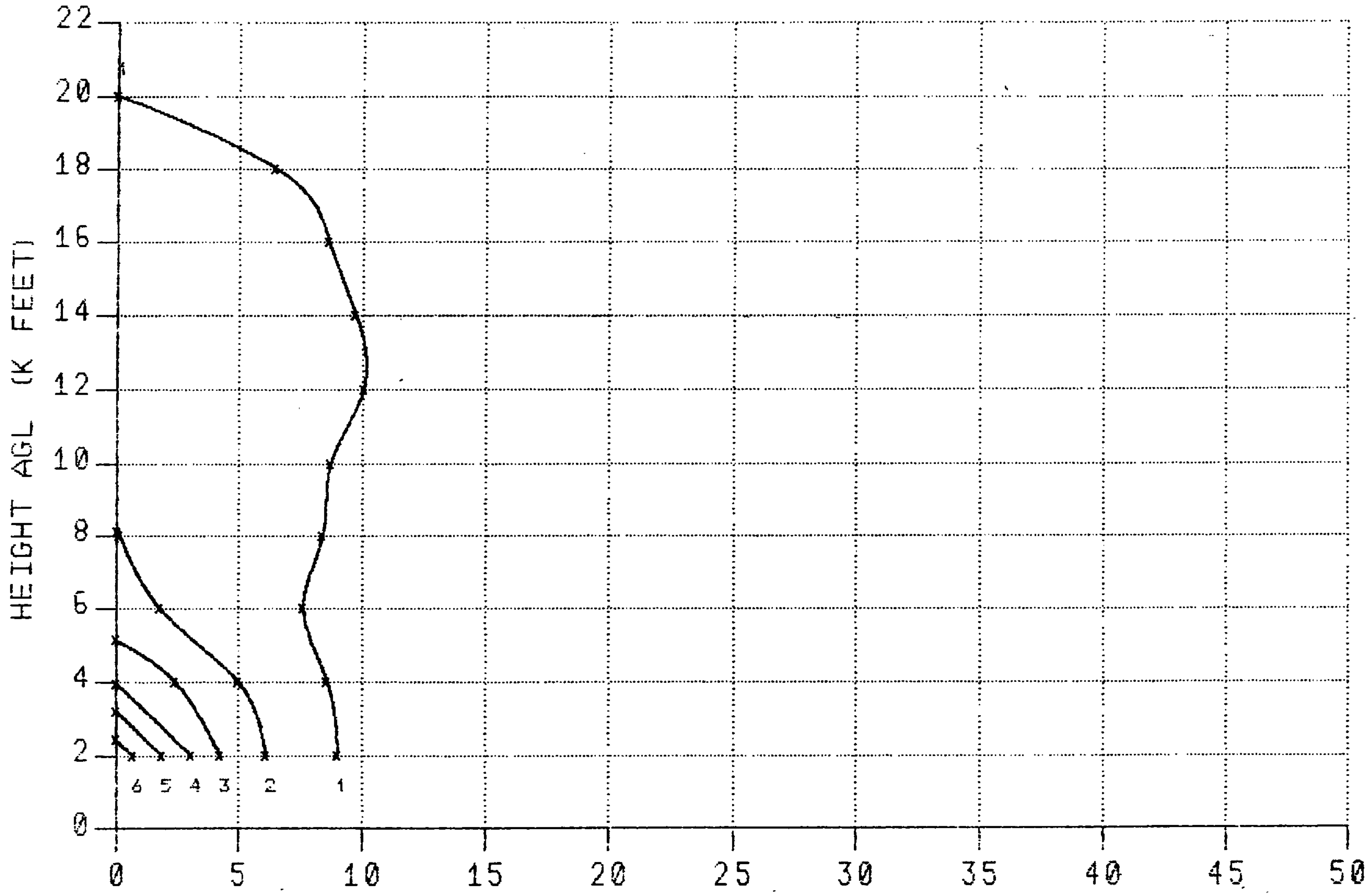
CLOUD COVER: CLR-SCT BKGND. REFLECTANCE: 15 TO 49 PERCENT
SOLAR ELEV. ANGLE : 31 TO 55 DEGREE
SURFACE VISIBILITY: 1 MILE (1.6 KM)
MIXING LYR DEPTH : 6000 FEET



CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

CLOUD COVER: CLR-SCT

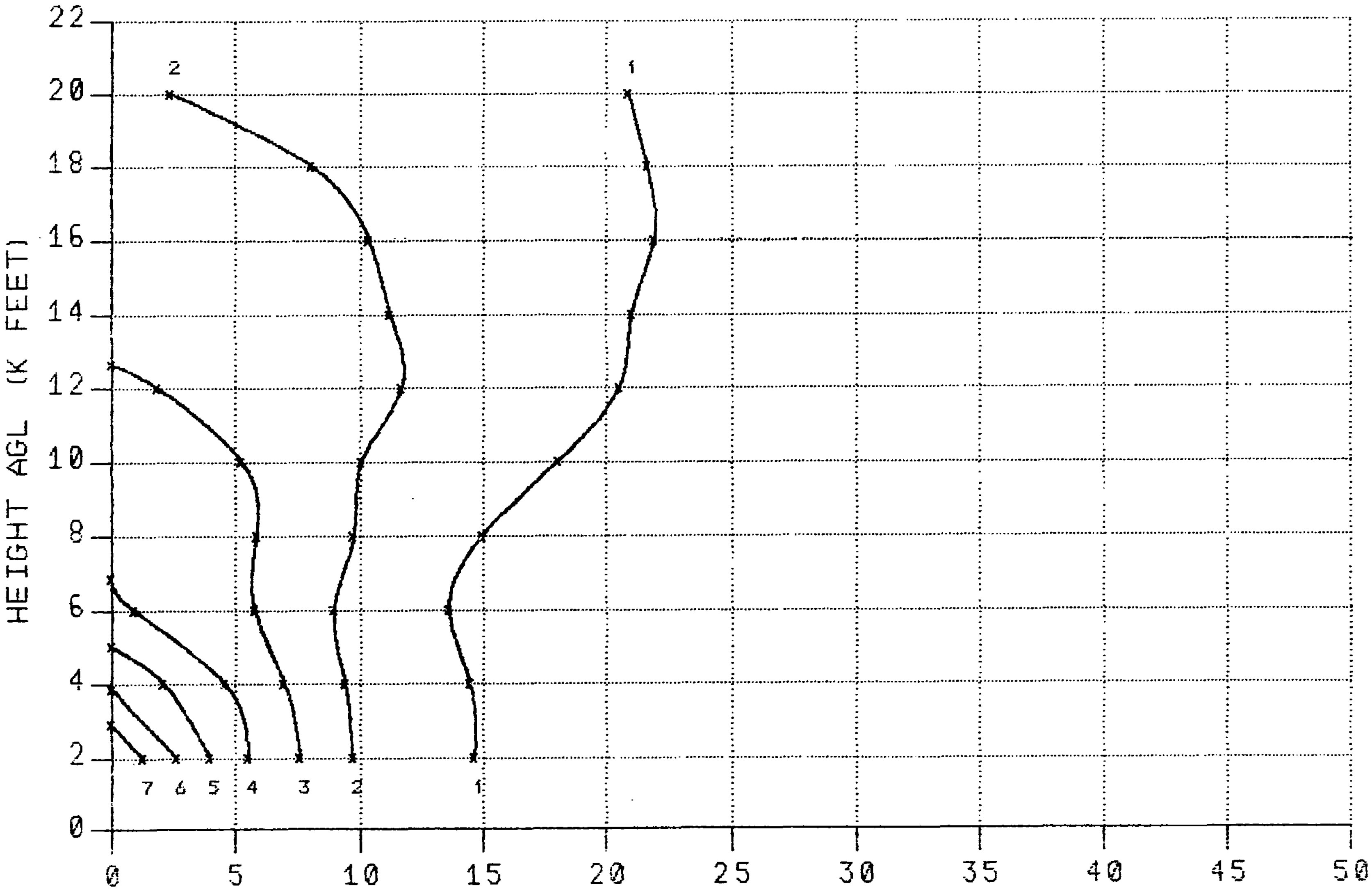
BKGND. REFLECTANCE: 15 TO 49 PERCENT
SOLAR ELEV. ANGLE : 31 TO 55 DEGREE
SURFACE VISIBILITY: 3 MILES (4.8 KM)
MIXING LYR. DEPTH : 6000 FEET



CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

CLOUD COVER: CLR-SCT

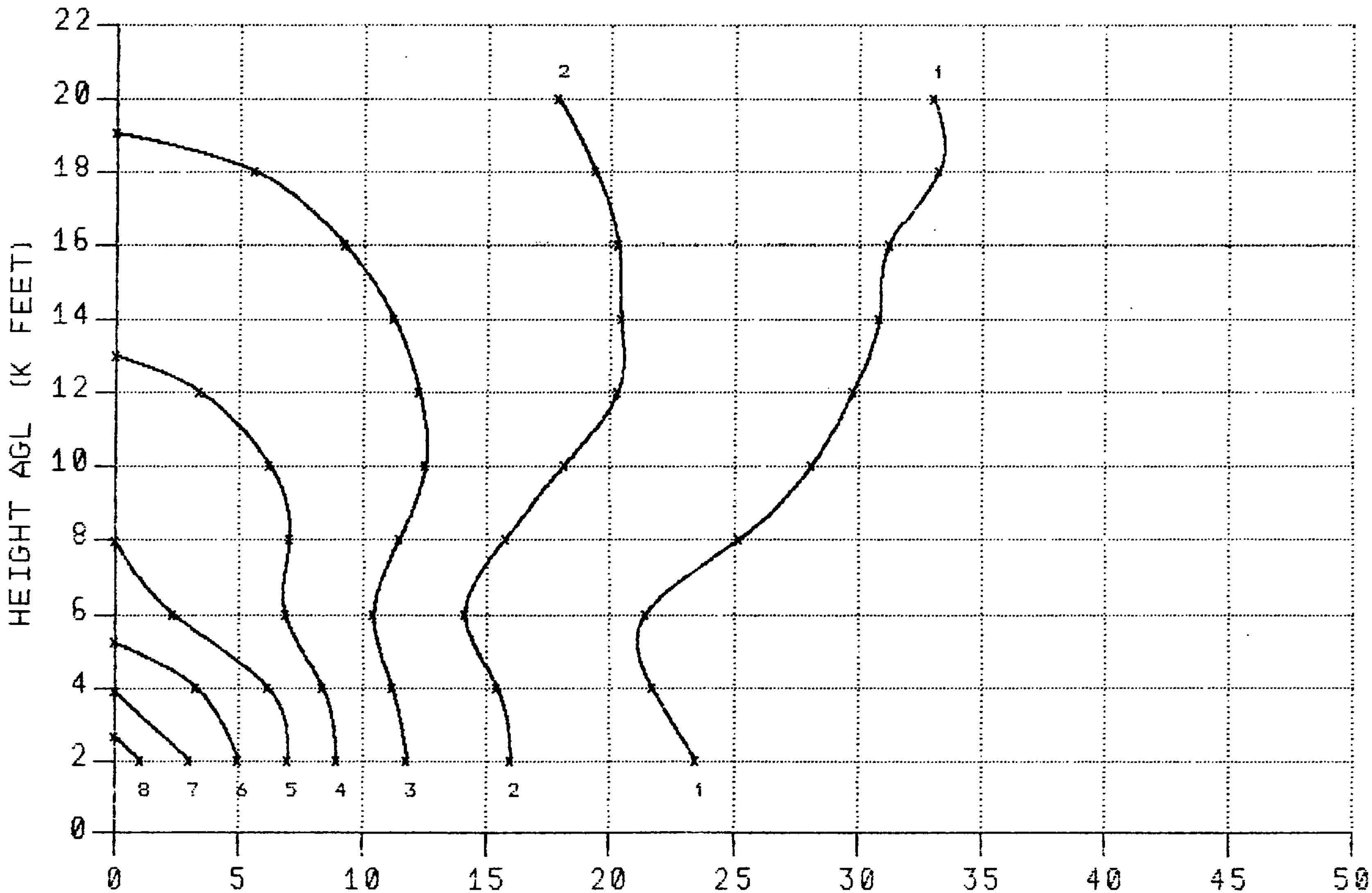
BKGND. REFLECTANCE: 15 TO 49 PERCENT
SOLAR ELEV. ANGLE : 31 TO 55 DEGREE
SURFACE VISIBILITY: 5 MILES (8.0 KM)
MIXING LYR. DEPTH : 6000 FEET



CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

CLOUD COVER: CLR-SCT

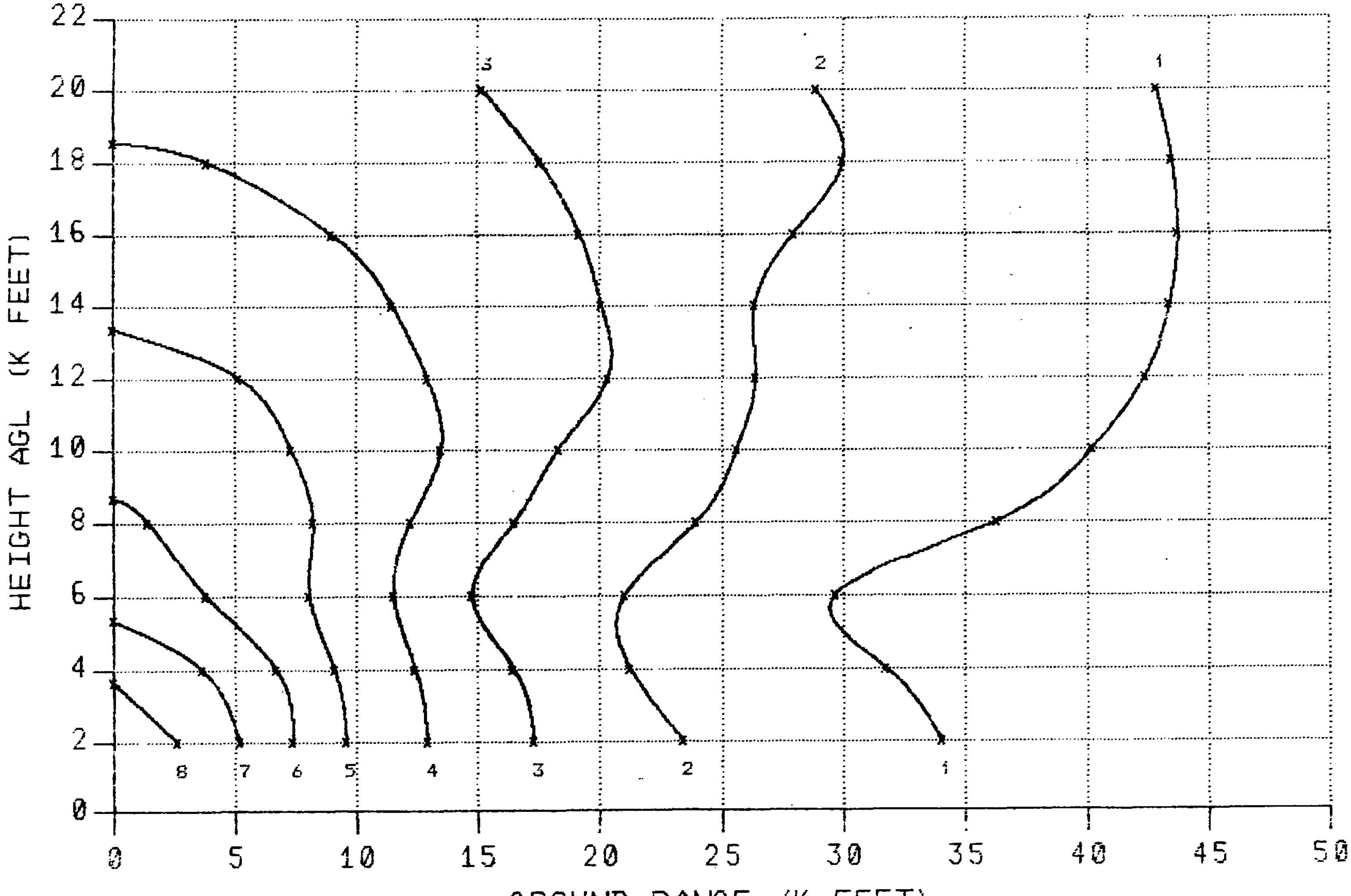
BKGND. REFLECTANCE: 15 TO 49 PERCENT
SOLAR ELEV. ANGLE : 31 TO 55 DEGREE
SURFACE VISIBILITY: 7 MILES (11.3 KM)
MIXING LYR. DEPTH : 6000 FEET



GROUND RANGE (K FEET)
CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

CLOUD COVER: CLR-SCT

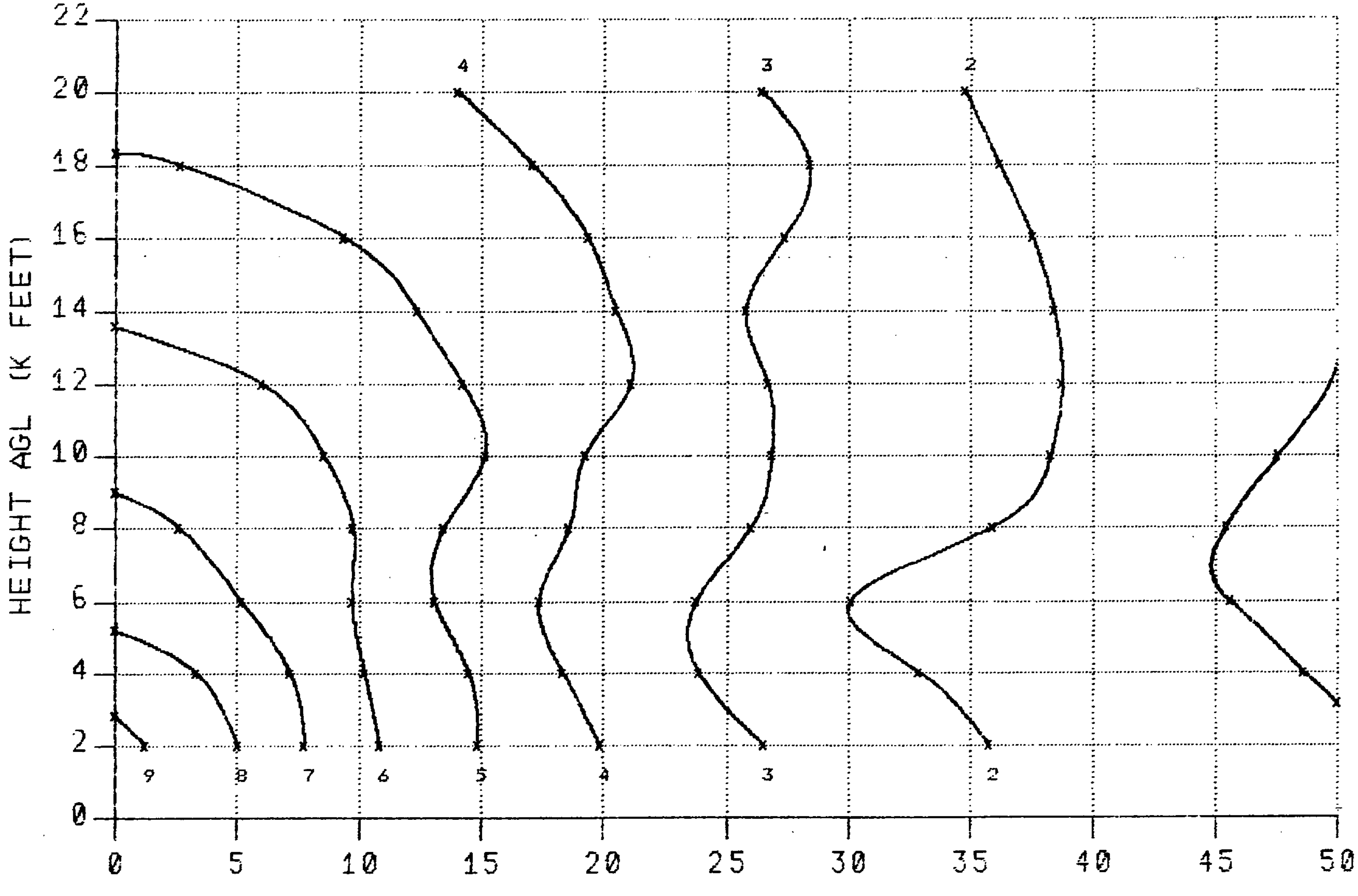
BKGND. REFLECTANCE: 15 TO 49 PERCENT
SOLAR ELEV. ANGLE : 31 TO 55 DEGREE
SURFACE VISIBILITY: 10 MILES (16.1 KM)
MIXING LYR. DEPTH : 6000 FEET



CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

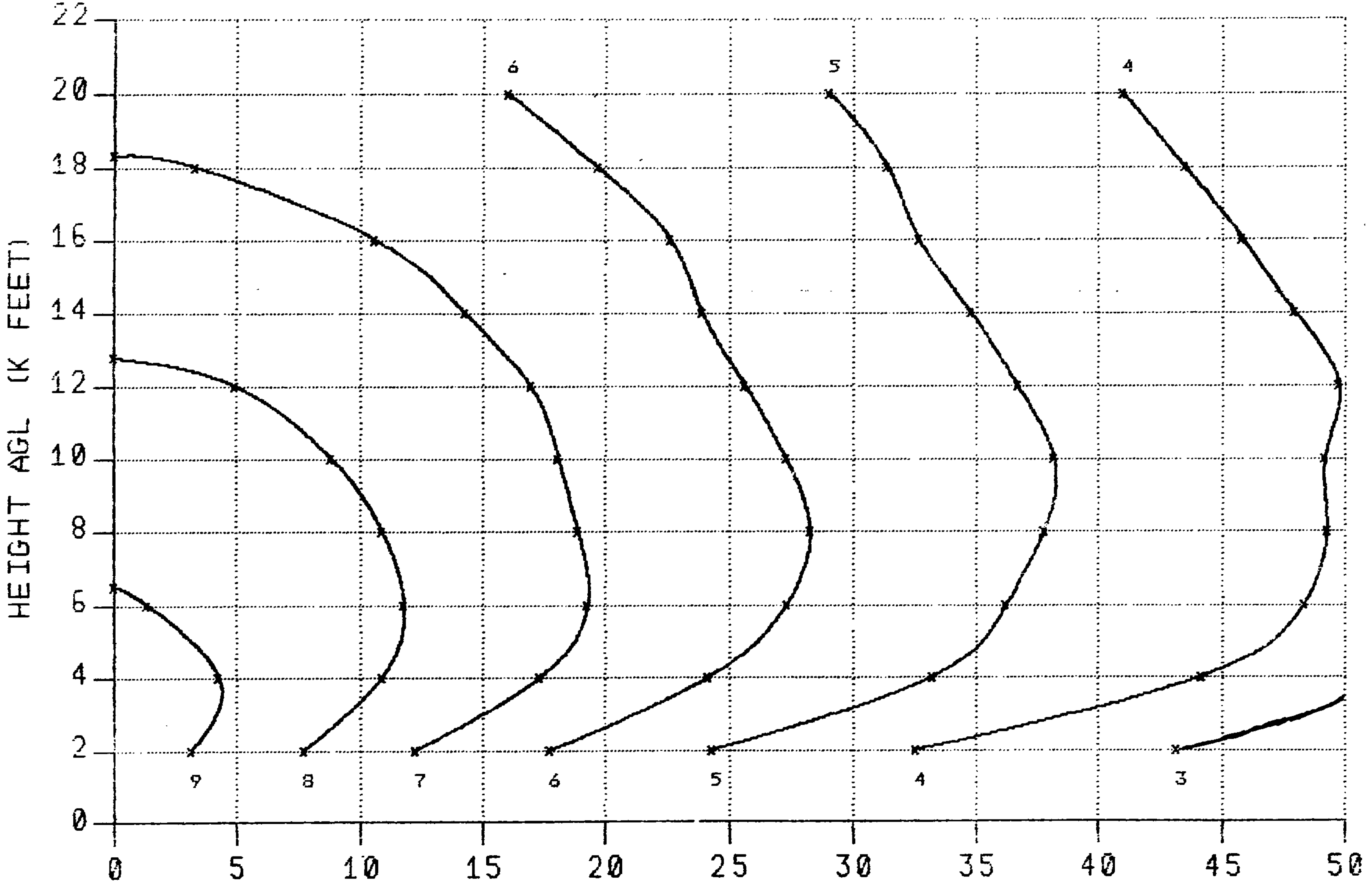
CLOUD COVER: CLR-SCT

BKGND. REFLECTANCE: 15 TO 49 PERCENT
SOLAR ELEV. ANGLE : 31 TO 55 DEGREE
SURFACE VISIBILITY: 15 MILES (24.1 KM)
MIXING LYR. DEPTH : 6000 FEET



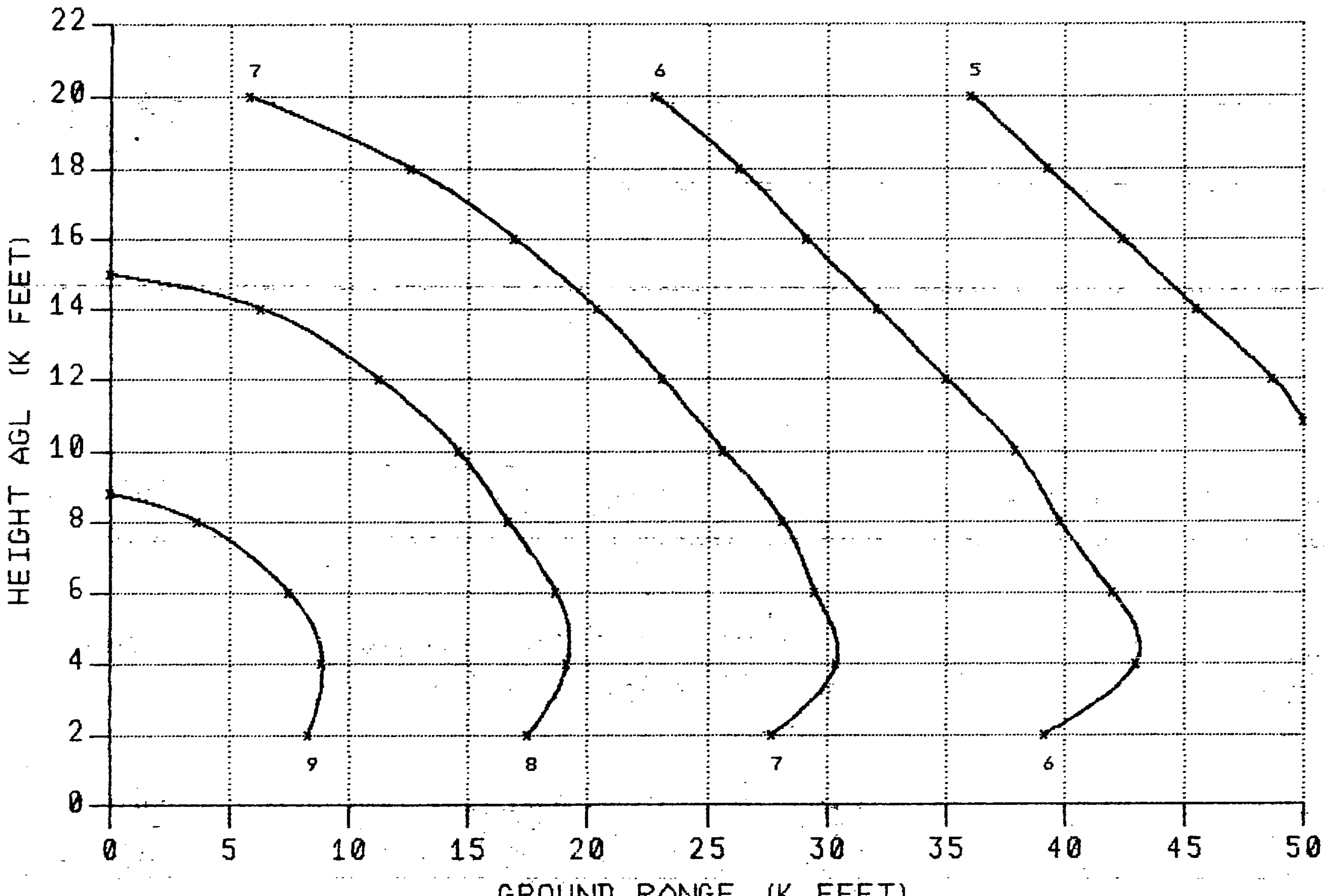
CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

CLOUD COVER: CLR-SCT BKGND. REFLECTANCE: 15 TO 49 PERCENT
SOLAR ELEV. ANGLE : 56 TO 90 DEGREE
SURFACE VISIBILITY: 1 MILE (1.6 KM)
MIXING LYR. DEPTH : BELOW 50 FEET

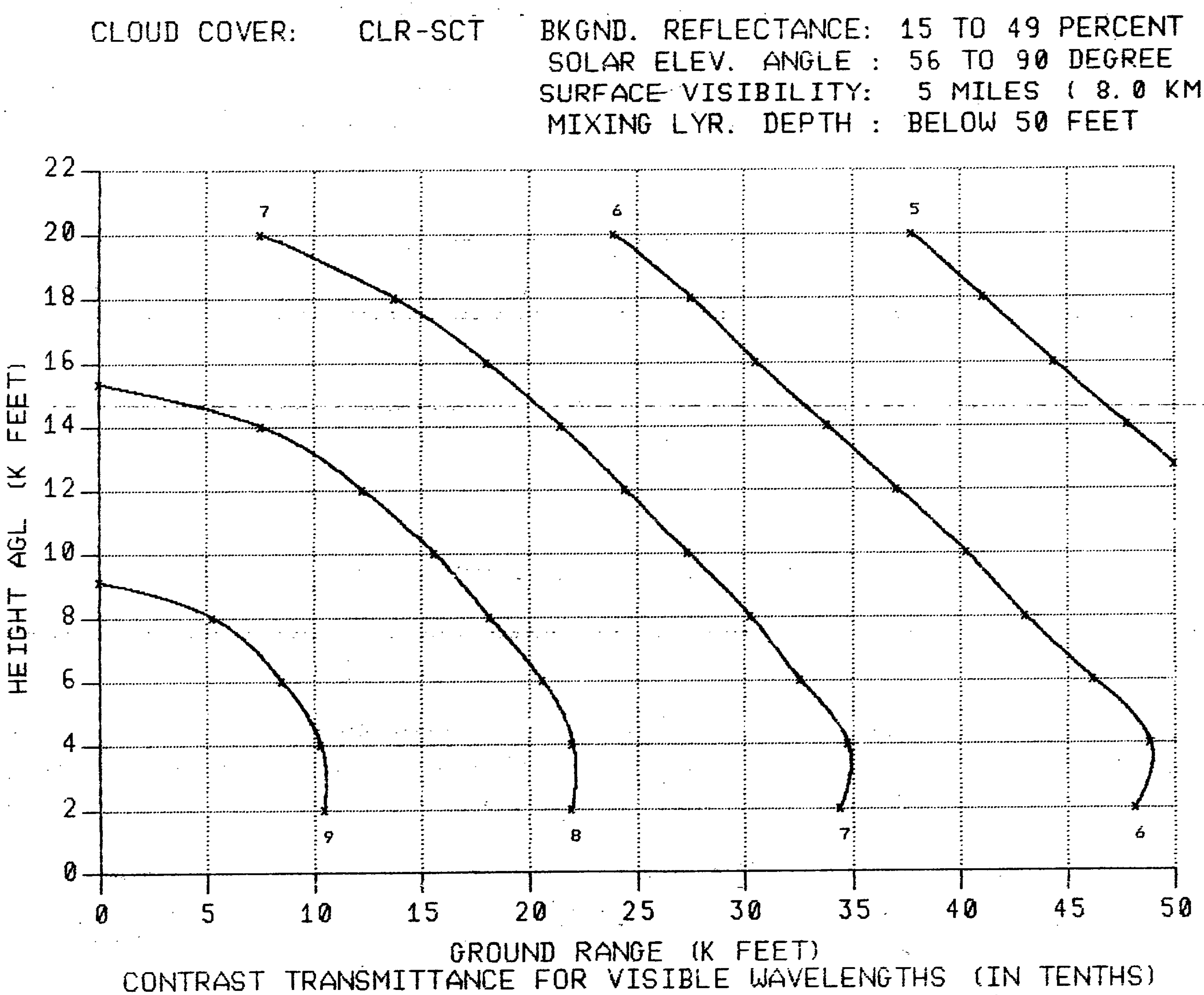


CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

CLOUD COVER: CLR-SCT BKGND. REFLECTANCE: 15 TO 49 PERCENT
SOLAR ELEV. ANGLE : 56 TO 90 DEGREE
SURFACE VISIBILITY: 3 MILES (4.8 KM)
MIXING LYR. DEPTH : BELOW 50 FEET

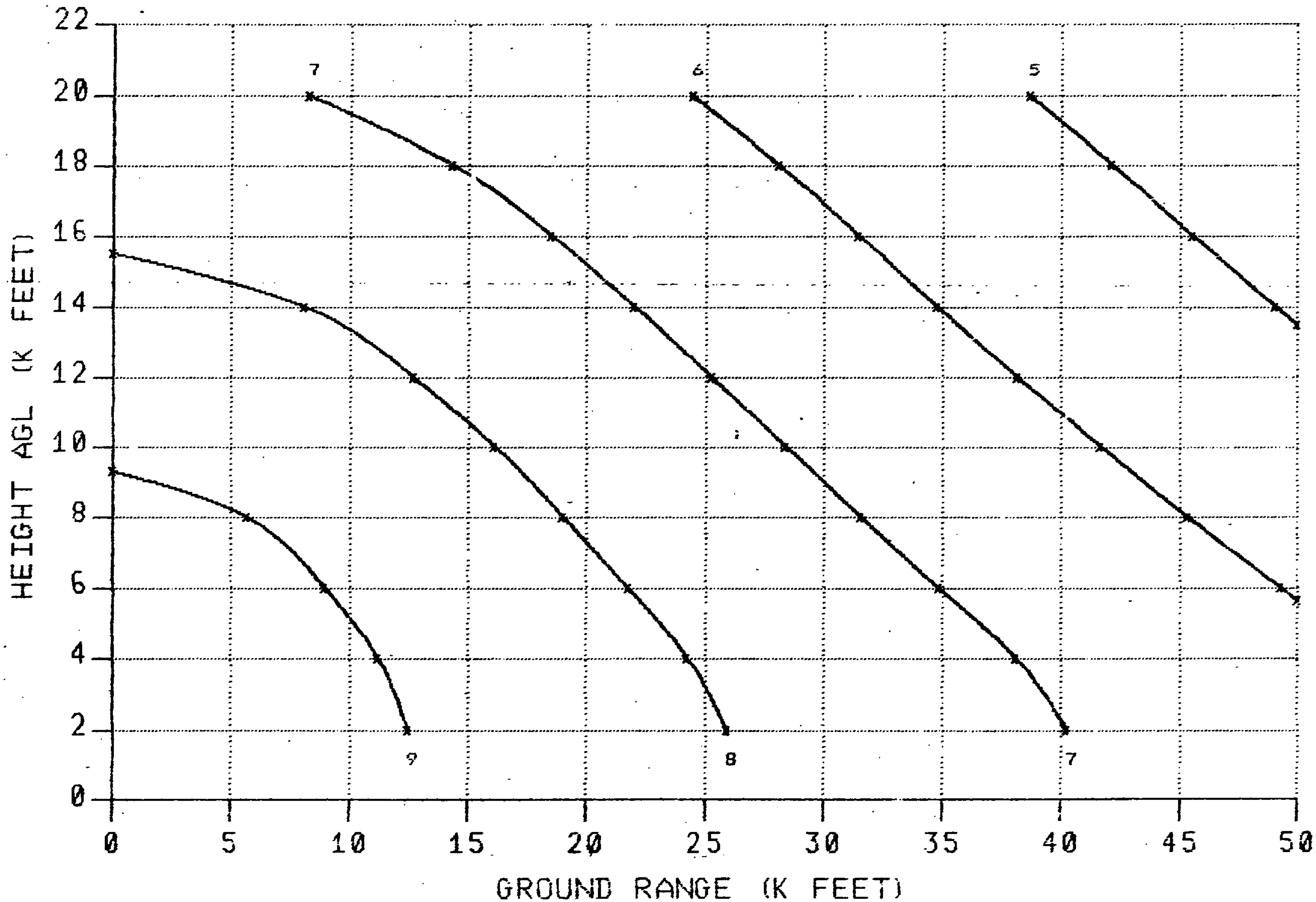


CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)


CLOUD COVER: CLR-SCT
BKGND. REFLECTANCE: 15 TO 49 PERCENT
SOLAR ELEV. ANGLE : 56 TO 90 DEGREE
SURFACE VISIBILITY: 5 MILES (8.0 KM)
MIXING LYR. DEPTH : BELOW 50 FEET
HEIGHT AGL (K FEET)
0
2
4
6
8
10
12
14
16
18
20
22
GROUND RANGE (K FEET)
0
5
10
15
20
25
30
35
40
45
50
CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)
7
6
5
9
8
7
6

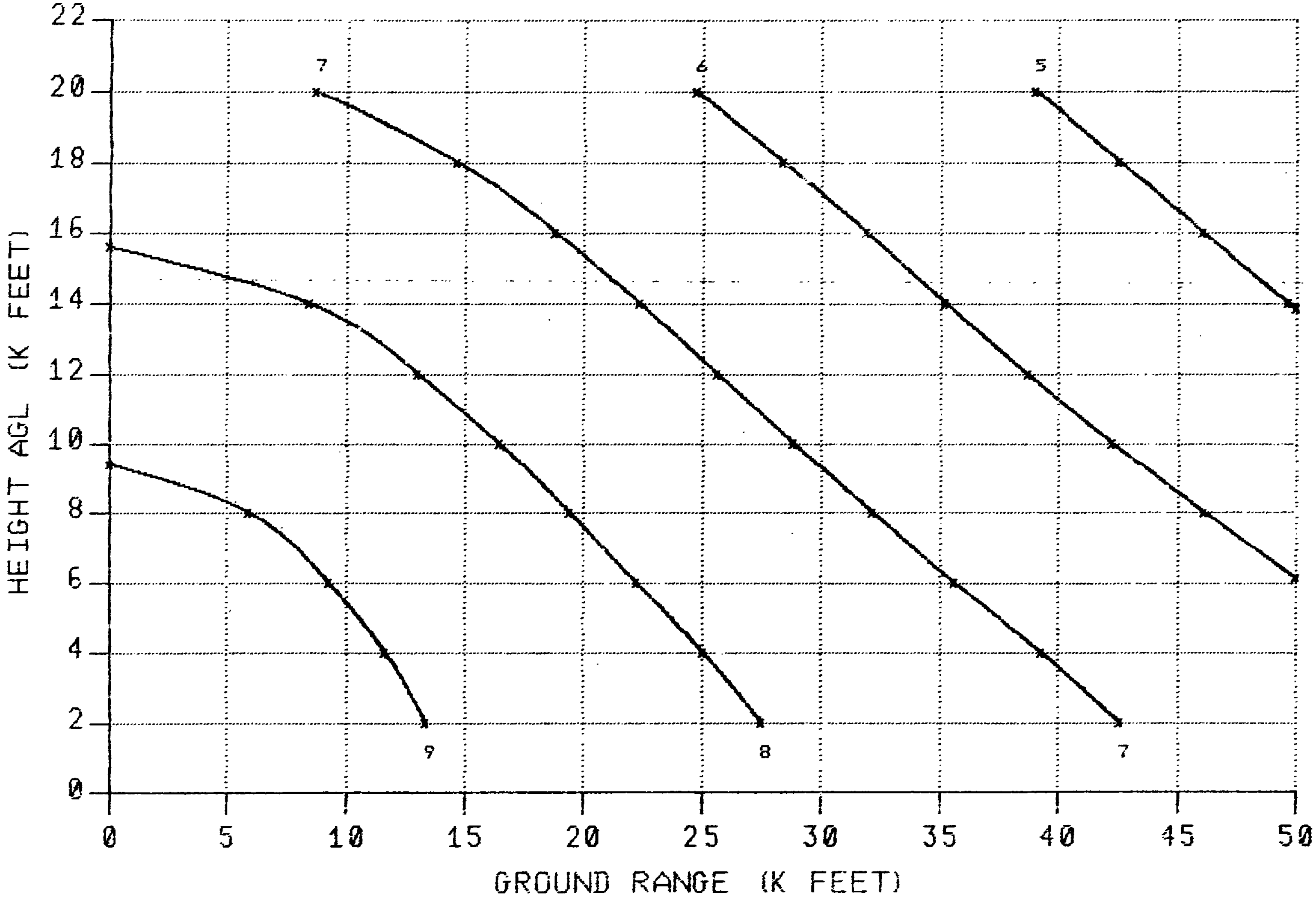
CLOUD COVER: CLR-SCT

BKGND. REFLECTANCE: 15 TO 49 PERCENT
SOLAR ELEV. ANGLE : 56 TO 90 DEGREE
SURFACE VISIBILITY: 7 MILES (11.3 KM)
MIXING LYR. DEPTH : BELOW 50 FEET



CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

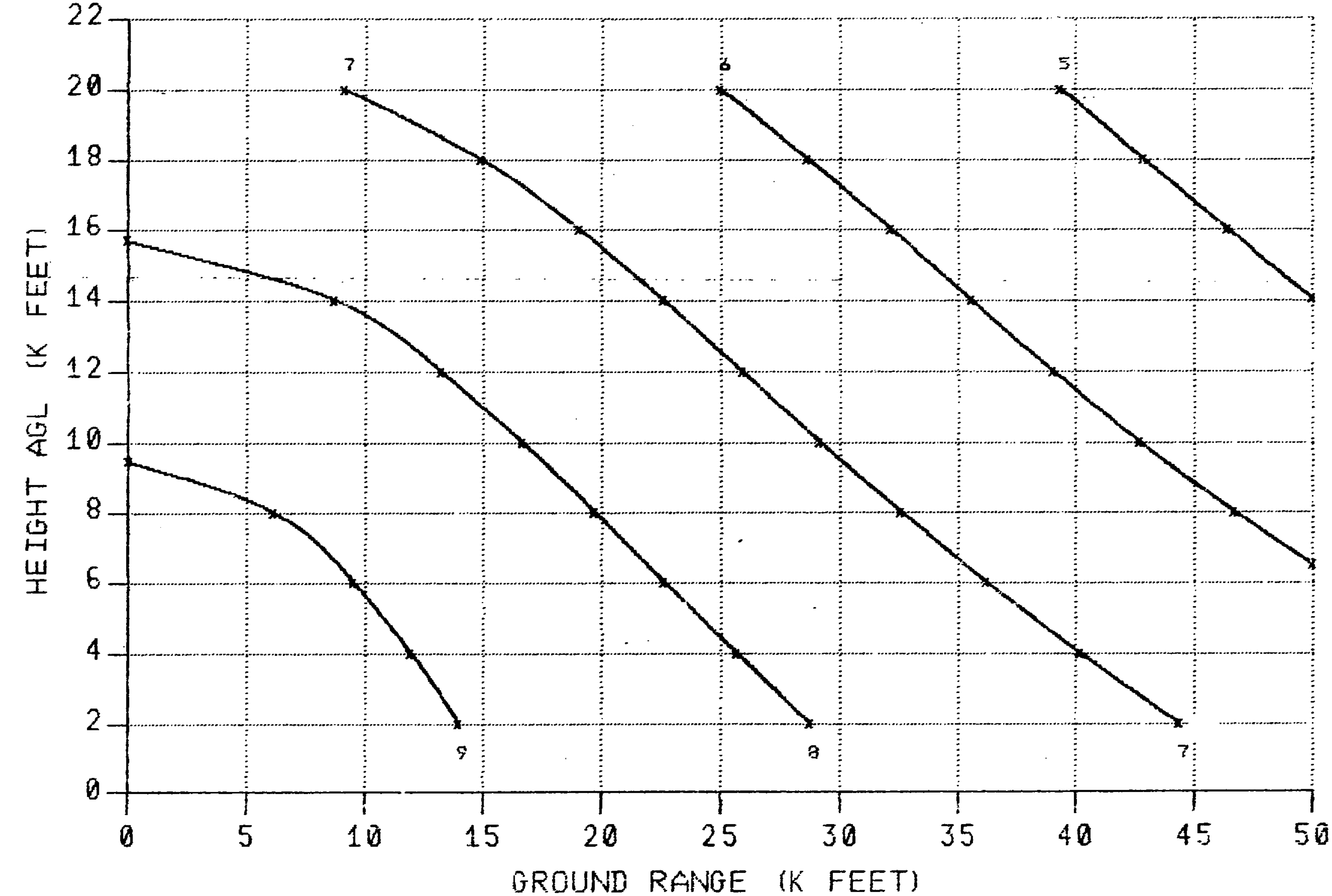
CLOUD COVER: CLR-SCT BKGND. REFLECTANCE: 15 TO 49 PERCENT
SOLAR ELEV. ANGLE : 56 TO 90 DEGREE
SURFACE VISIBILITY: 10 MILES (16.1 KM)
MIXING LYR. DEPTH : BELOW 50 FEET



CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

CLOUD COVER: CLR-SCT

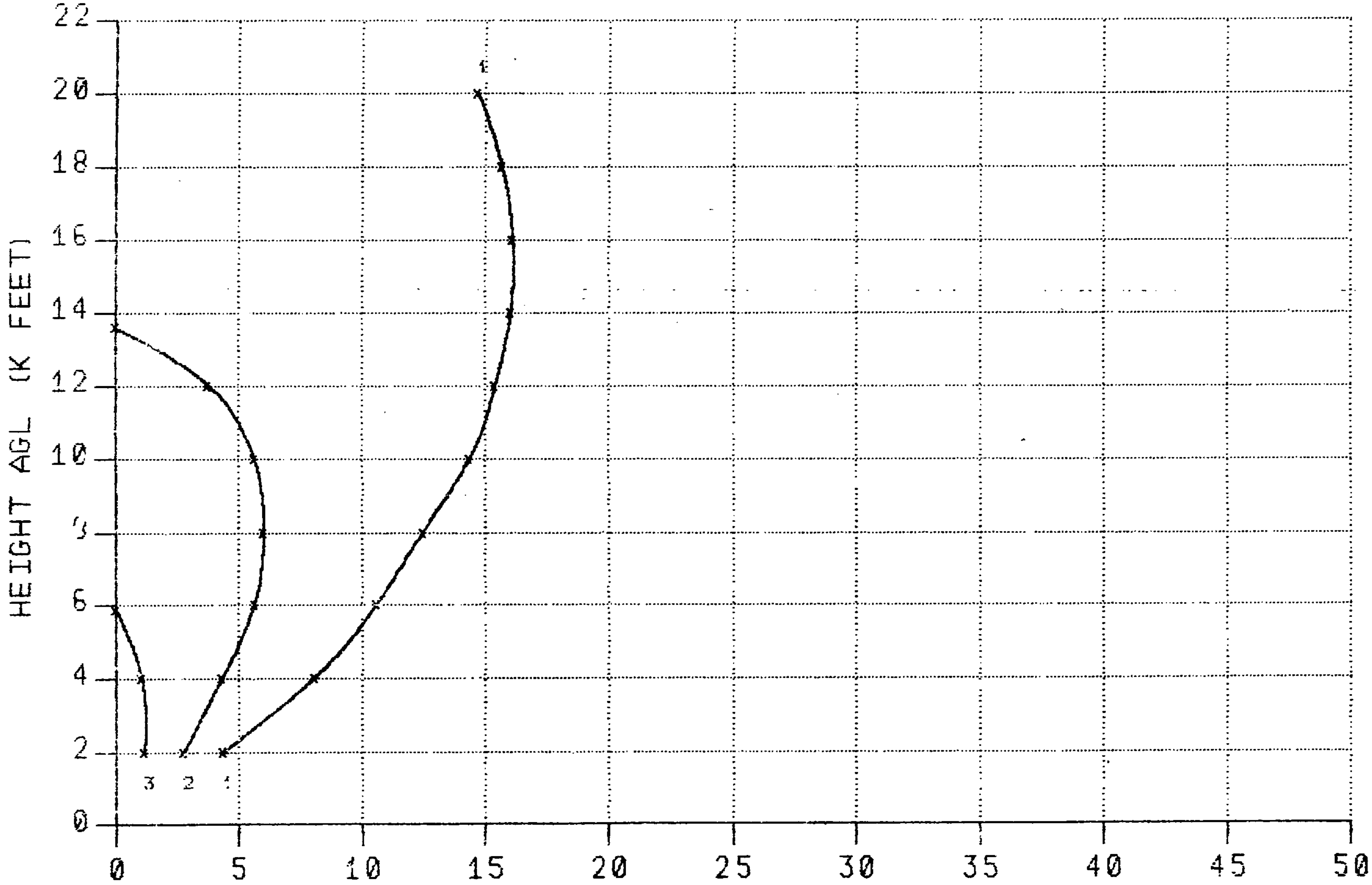
BKGND. REFLECTANCE: 15 TO 49 PERCENT
SOLAR ELEV. ANGLE : 56 TO 90 DEGREE
SURFACE VISIBILITY: 15 MILES (24.1 KM)
MIXING LYR. DEPTH : BELOW 50 FEET



CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

CLOUD COVER: CLR-SCT

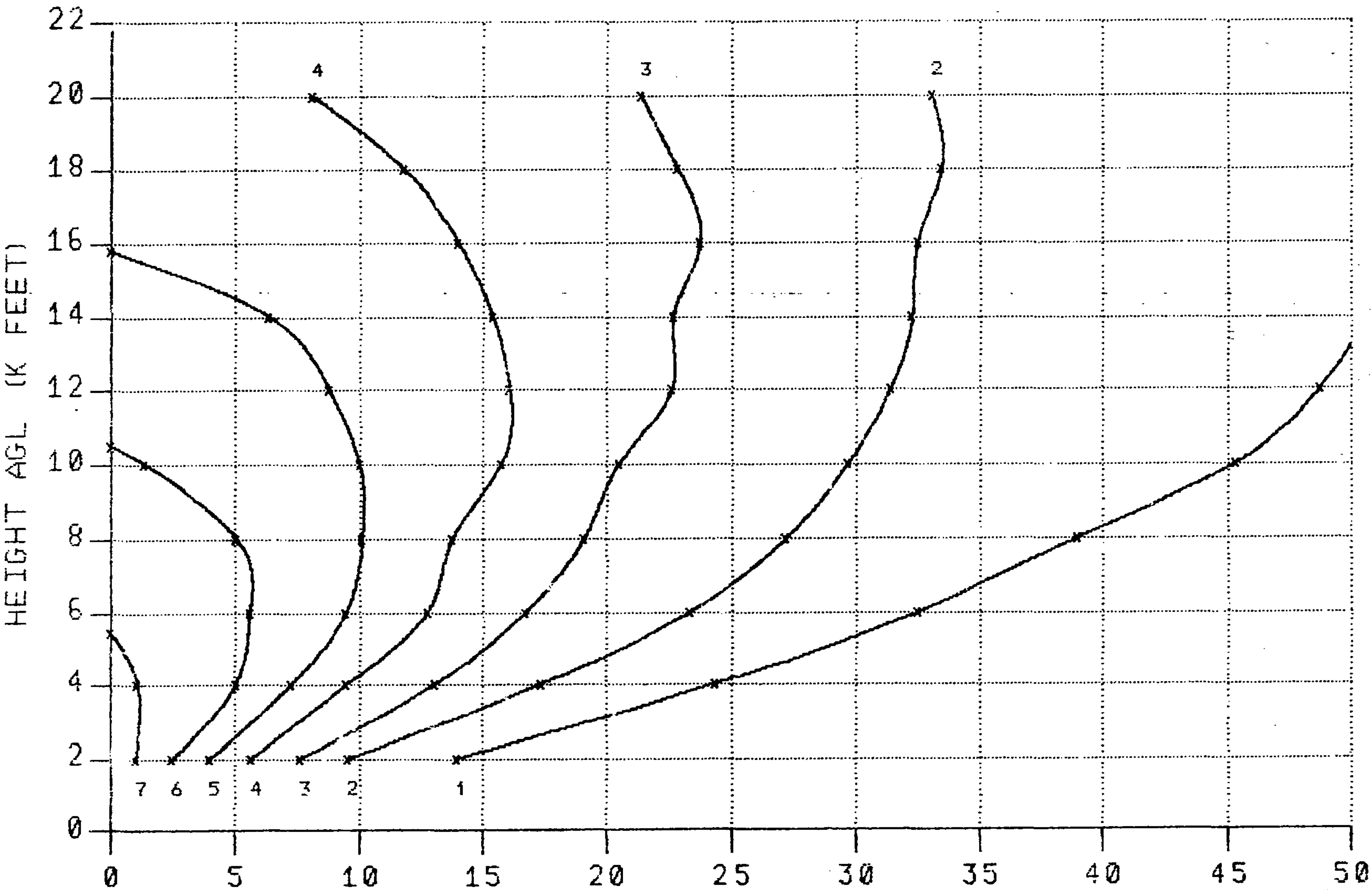
BKGND. REFLECTANCE: 15 TO 49 PERCENT
SOLAR ELEV. ANGLE : 56 TO 90 DEGREE
SURFACE VISIBILITY: 1 MILE (1.6 KM)
MIXING LYR. DEPTH : 1500 FEET



CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

CLOUD COVER: CLR-SCT

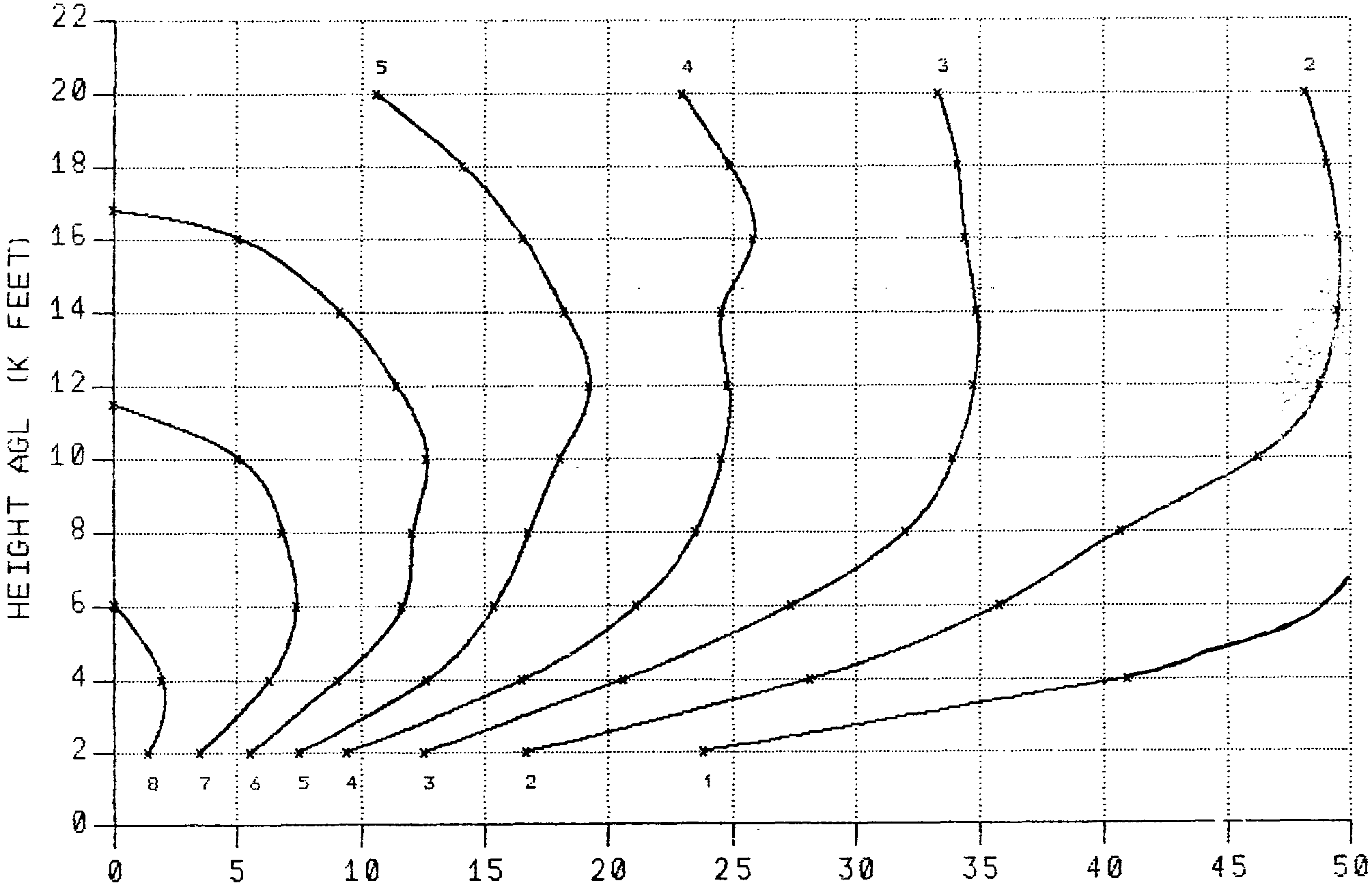
BKGND. REFLECTANCE: 15 TO 49 PERCENT
SOLAR ELEV. ANGLE : 56 TO 90 DEGREE
SURFACE VISIBILITY: 3 MILES (4.8 KM)
MIXING LYR. DEPTH : 1500 FEET



GROUND RANGE (K FEET)
CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

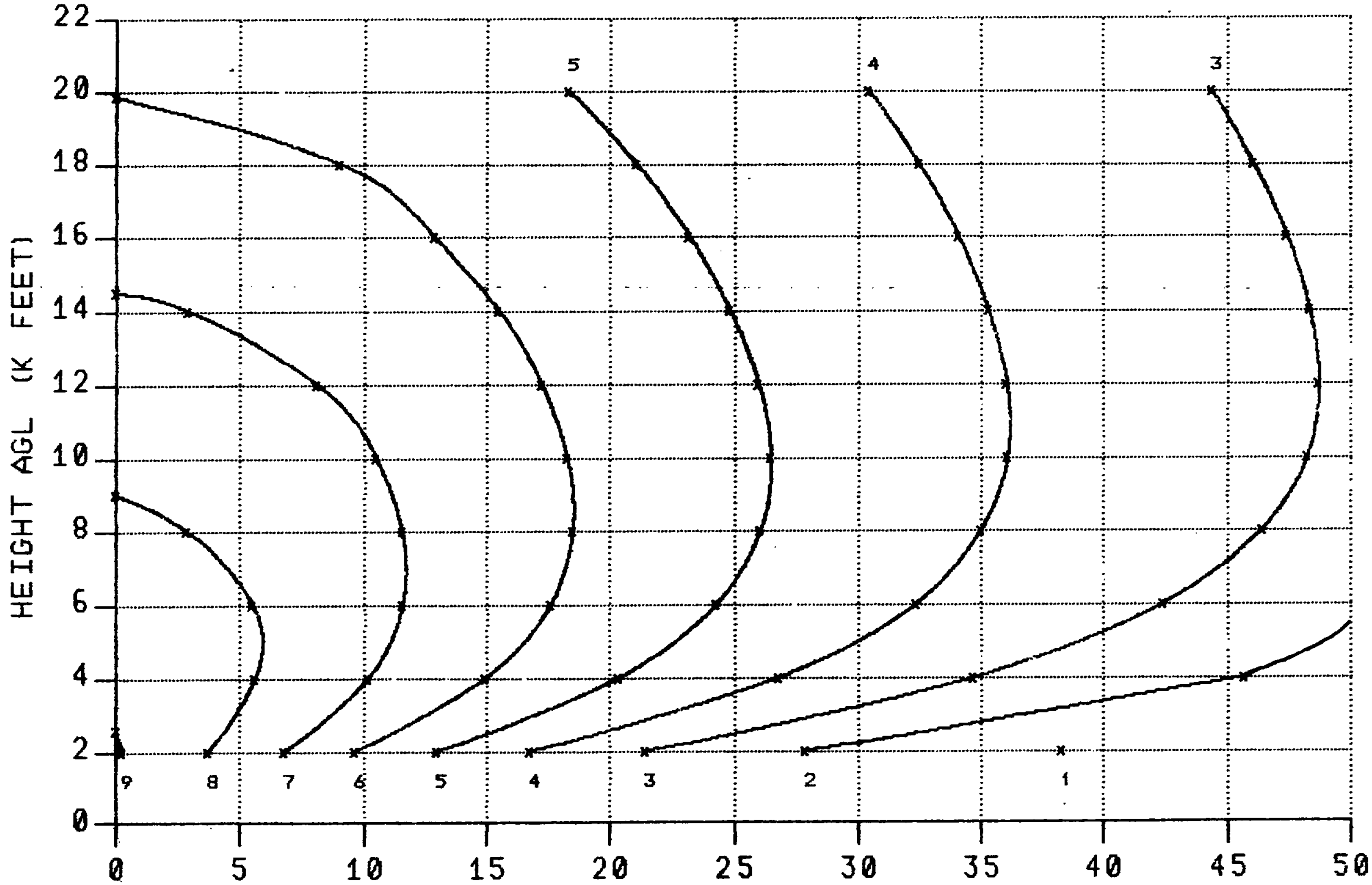
CLOUD COVER: CLR-SCT

BKGND. REFLECTANCE: 15 TO 49 PERCENT
SOLAR ELEV. ANGLE : 56 TO 90 DEGREE
SURFACE VISIBILITY: 5 MILES (8.0 KM)
MIXING LYR. DEPTH : 1500 FEET



GROUND RANGE (K FEET)
CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

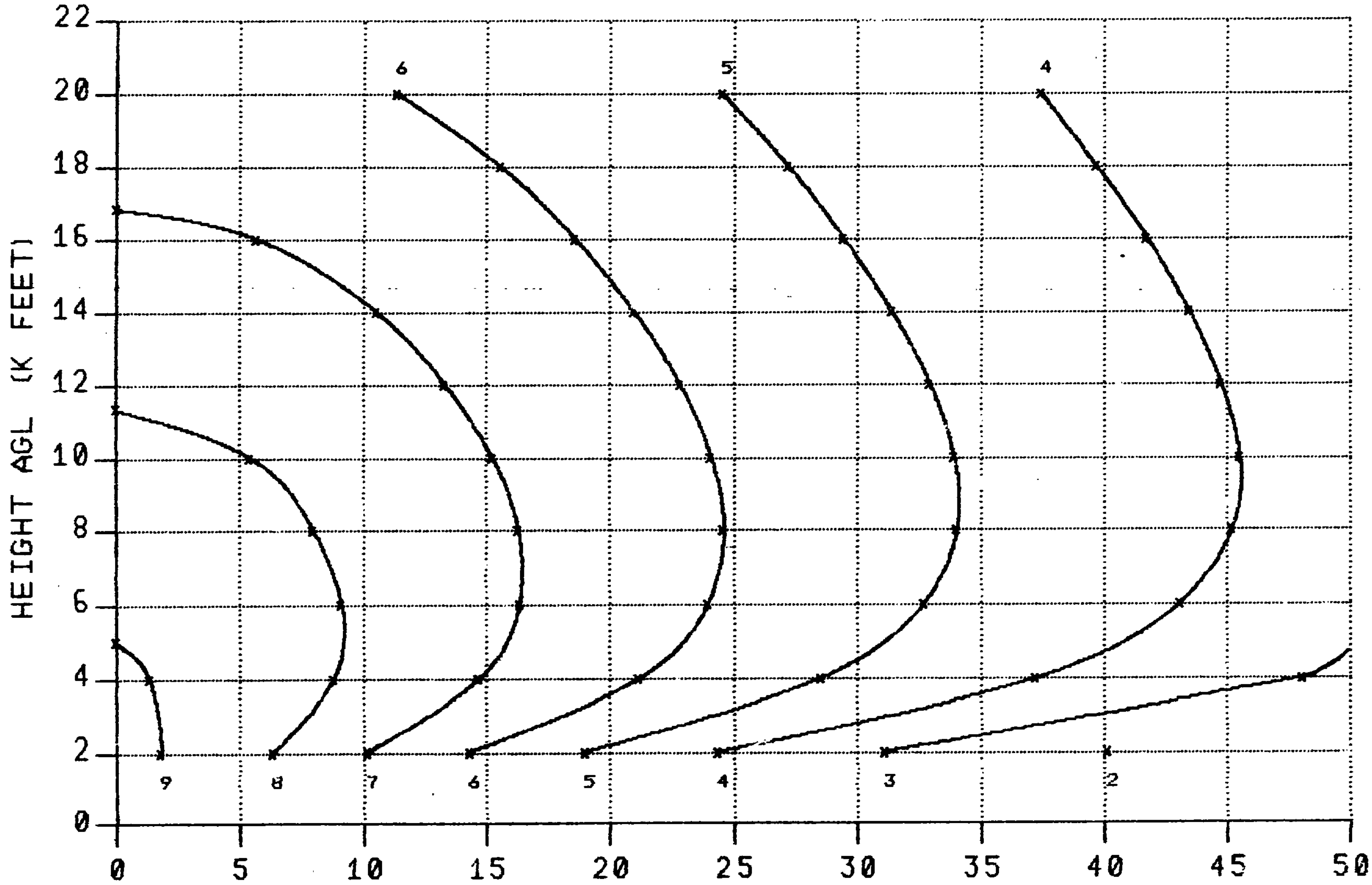
CLOUD COVER: CLR-SCT BKGND. REFLECTANCE: 15 TO 49 PERCENT
SOLAR ELEV. ANGLE : 56 TO 90 DEGREE
SURFACE VISIBILITY: 7 MILES (11.3 KM)
MIXING LYR. DEPTH : 1500 FEET



GROUND RANGE (K FEET)
CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

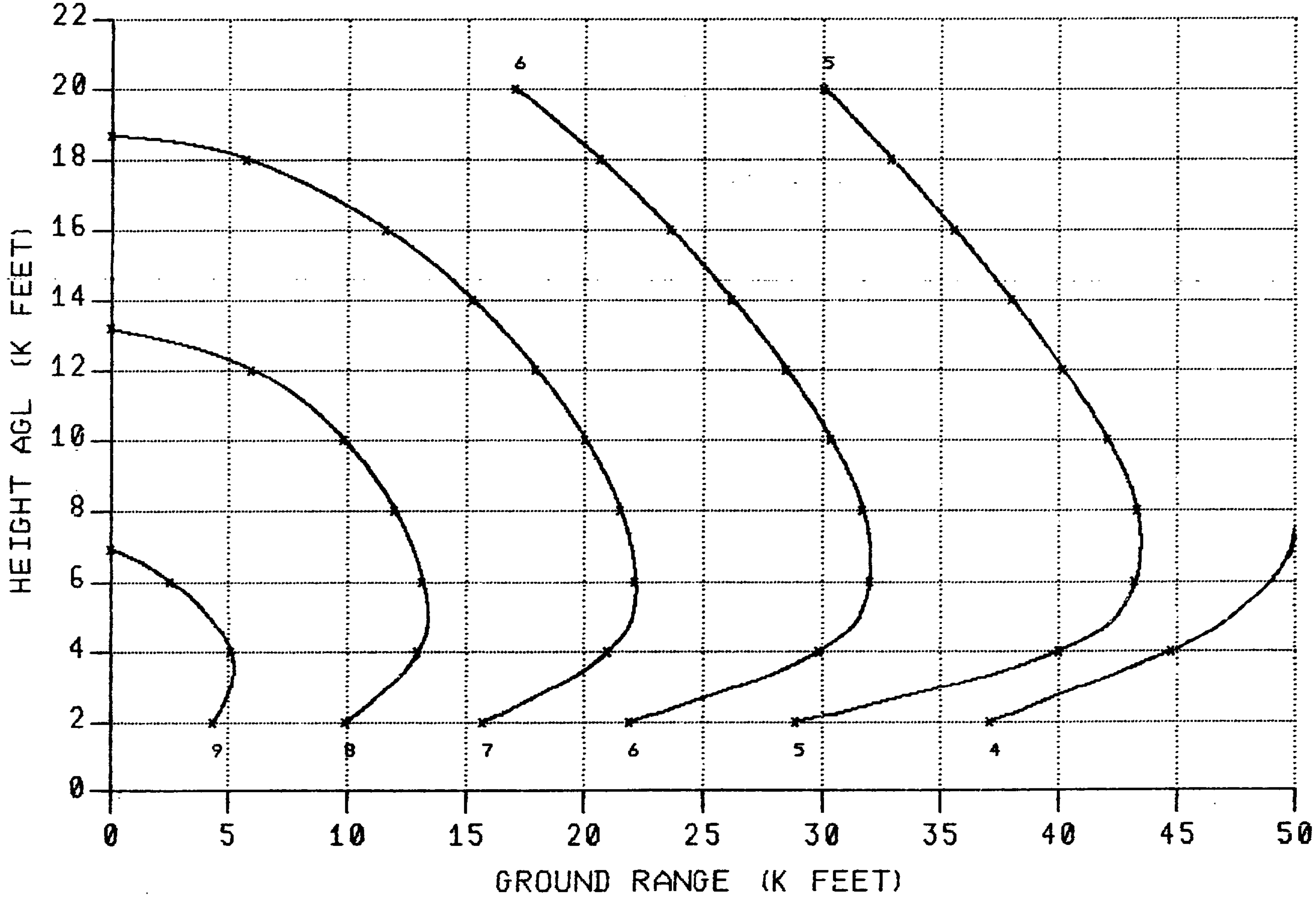
CLOUD COVER: CLR-SCT

BKGND. REFLECTANCE: 15 TO 49 PERCENT
SOLAR ELEV. ANGLE : 56 TO 90 DEGREE
SURFACE VISIBILITY: 10 MILES (16.1 KM)
MIXING LYR. DEPTH : 1500 FEET



CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

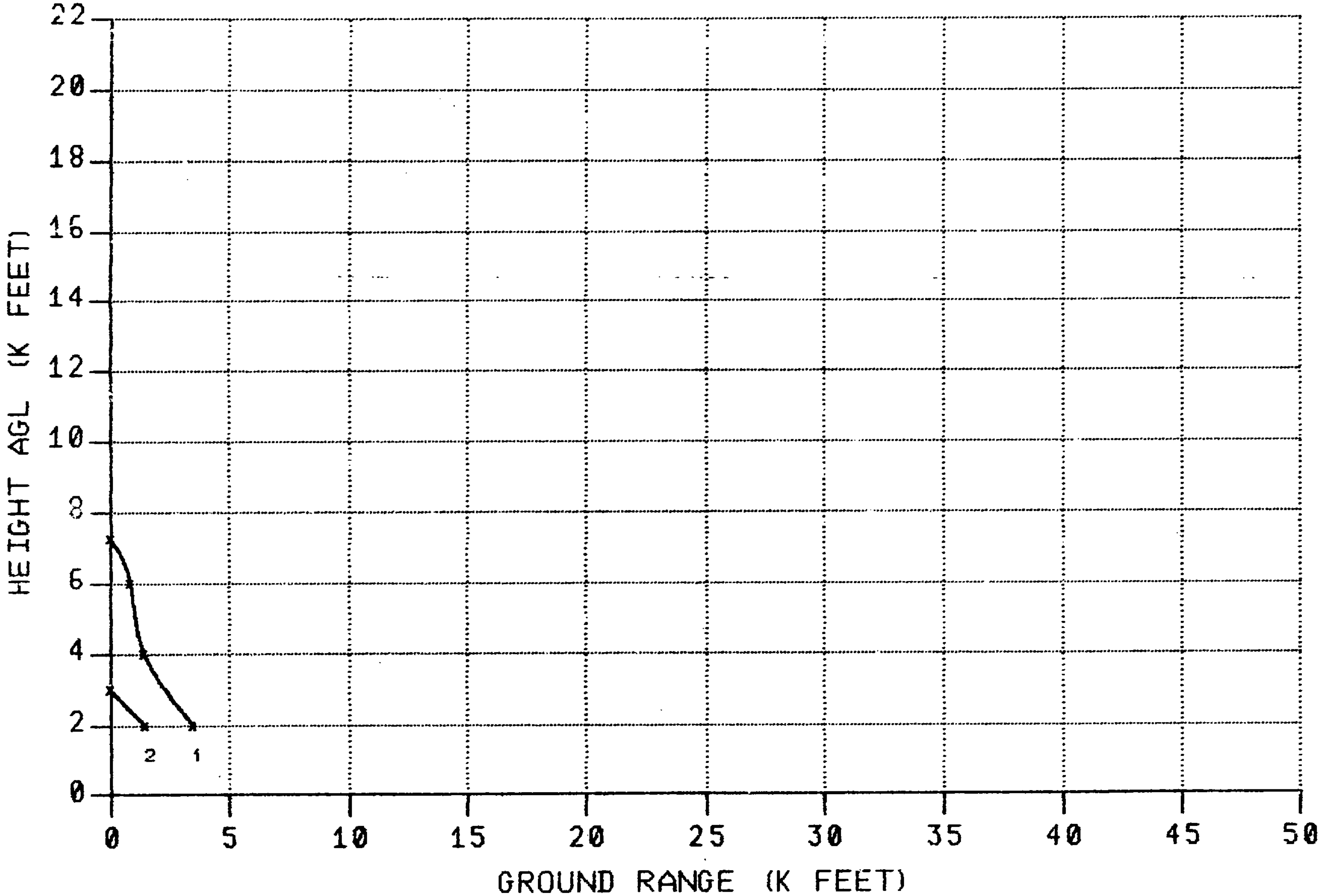
CLOUD COVER: CLR-SCT BKGND. REFLECTANCE: 15 TO 49 PERCENT
SOLAR ELEV. ANGLE : 56 TO 90 DEGREE
SURFACE VISIBILITY: 15 MILES (24.1 KM)
MIXING LYR. DEPTH : 1500 FEET



CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

CLOUD COVER: CLR-SCT

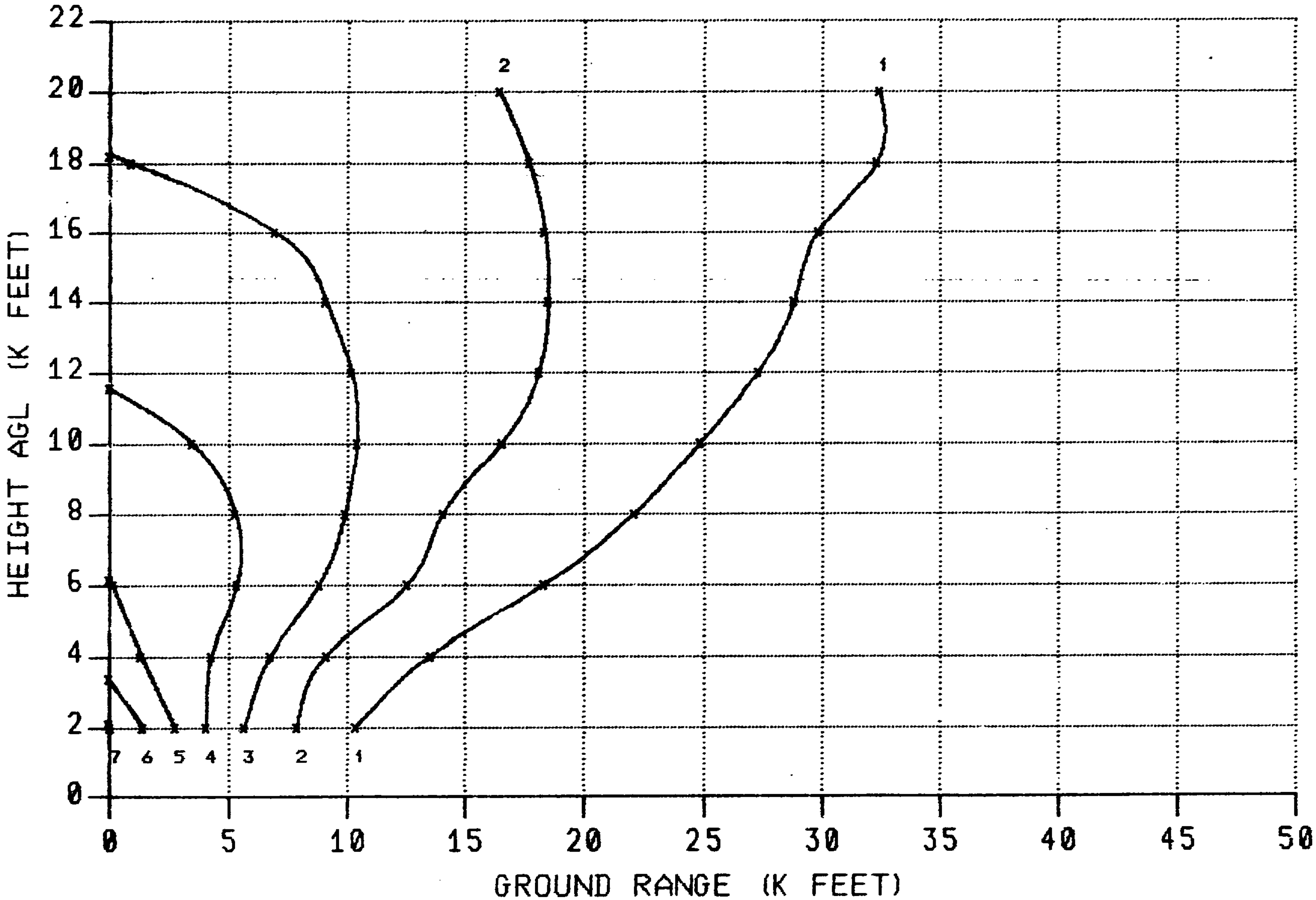
BKGND. REFLECTANCE: 15 TO 49 PERCENT
SOLAR ELEV. ANGLE : 56 TO 90 DEGREE
SURFACE VISIBILITY: 1 MILE (1.6 KM)
MIXING LYR. DEPTH : 3000 FEET



CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

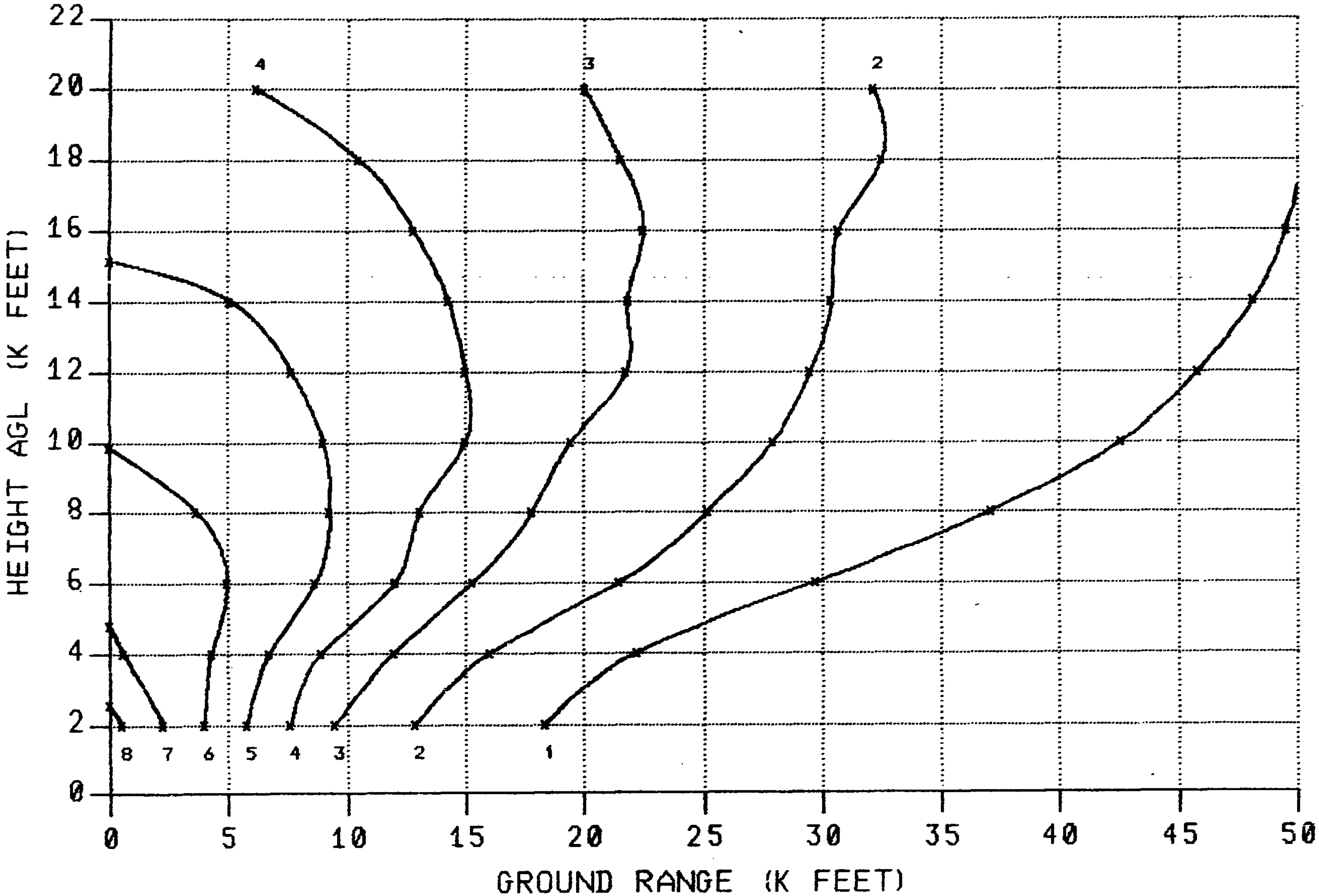
CLOUD COVER: CLR-SCT

BKGND. REFLECTANCE: 15 TO 49 PERCENT
SOLAR ELEV. ANGLE : 56 TO 90 DEGREE
SURFACE VISIBILITY: 3 MILES (4.8 KM)
MIXING LYR. DEPTH : 3000 FEET



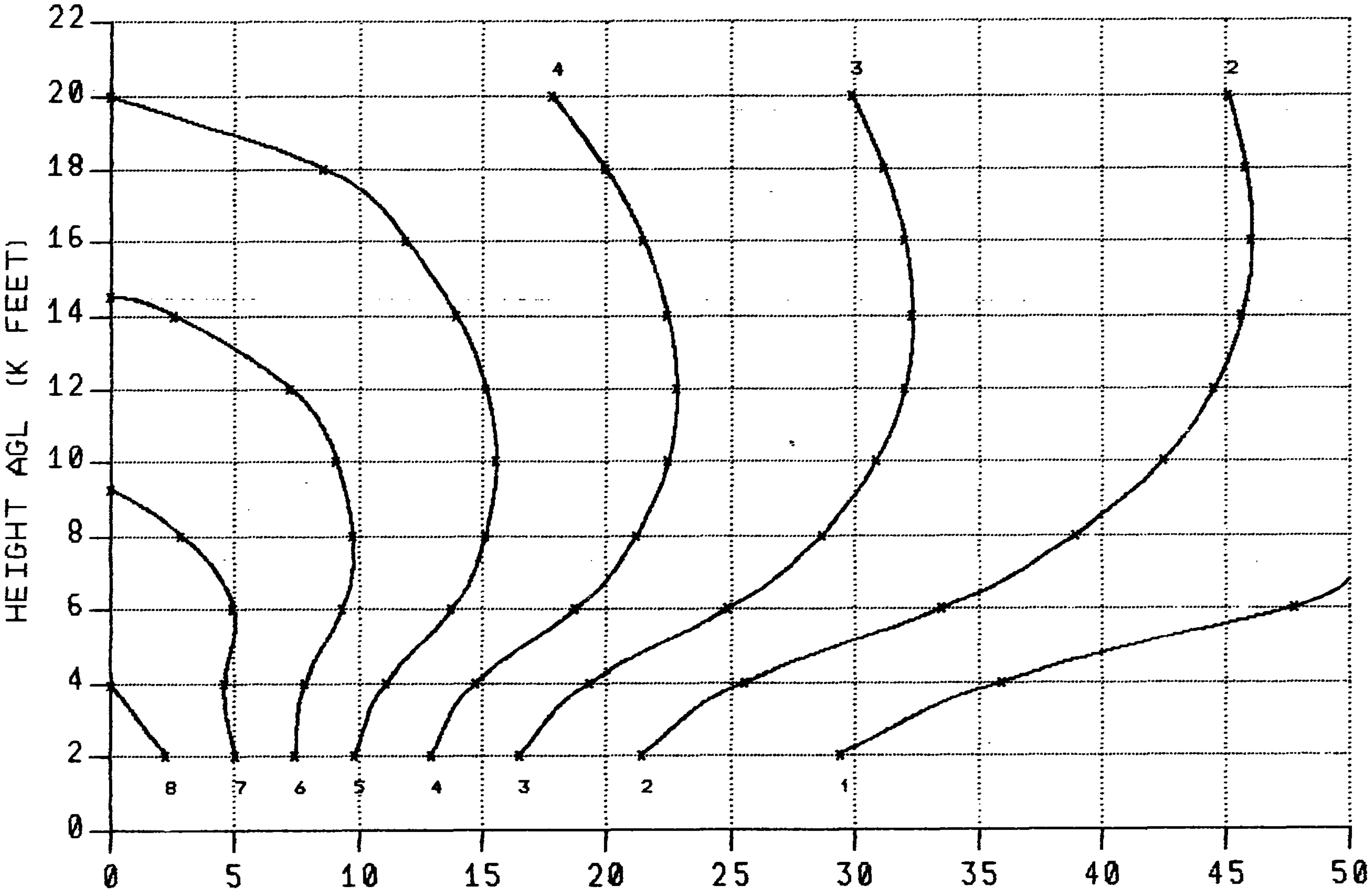
CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

CLOUD COVER: CLR-SCT BKGND. REFLECTANCE: 15 TO 49 PERCENT
SOLAR ELEV. ANGLE : 56 TO 90 DEGREE
SURFACE VISIBILITY: 5 MILES (8.0 KM)
MIXING LYR. DEPTH : 3000 FEET



CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

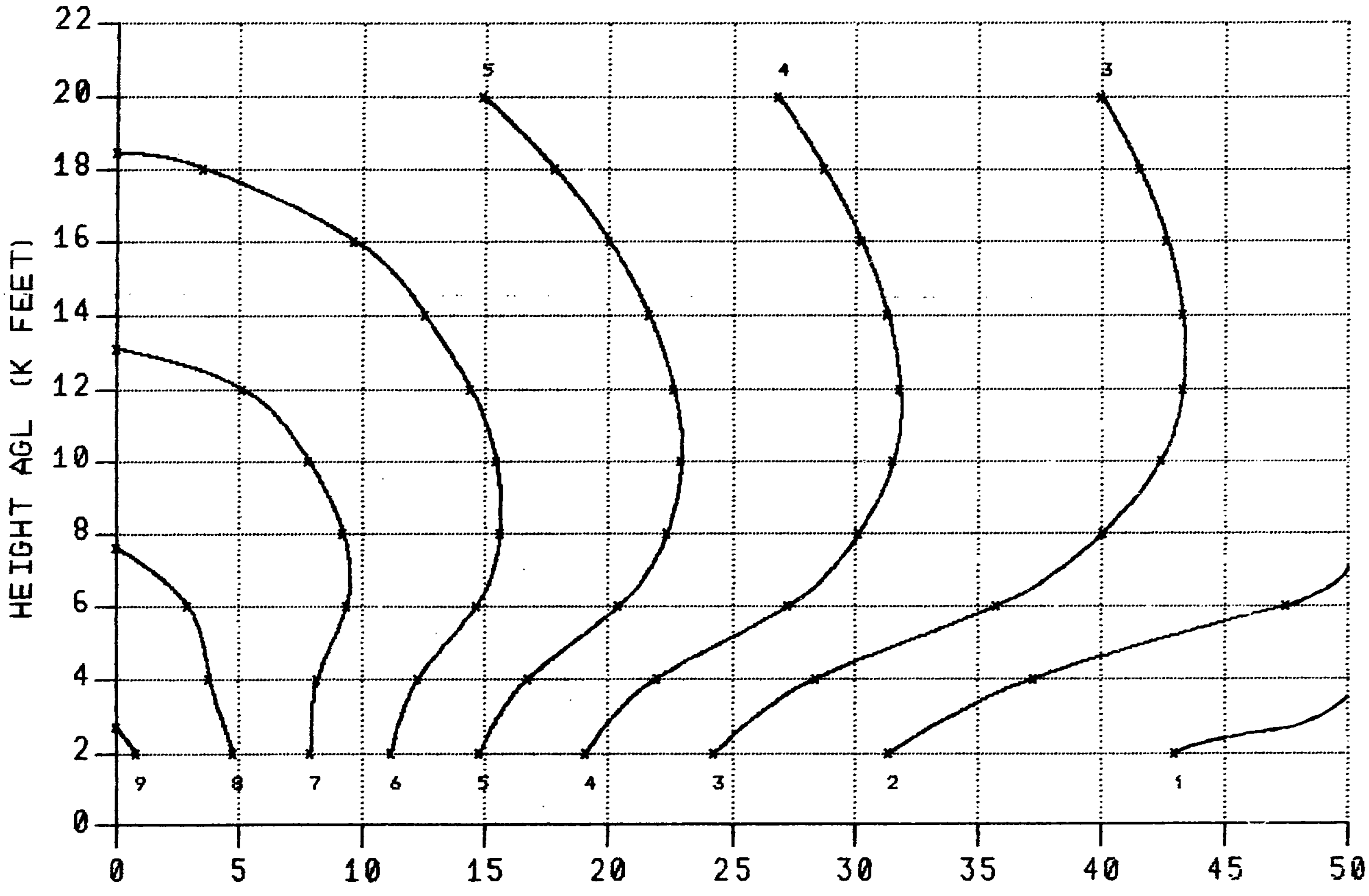
CLOUD COVER: CLR-SCT BKGND. REFLECTANCE: 15 TO 49 PERCENT
SOLAR ELEV. ANGLE : 56 TO 90 DEGREE
SURFACE VISIBILITY: 7 MILES (11.3 KM)
MIXING LYR. DEPTH : 3000 FEET



GROUND RANGE (K FEET)
CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

CLOUD COVER: CLR-SCT

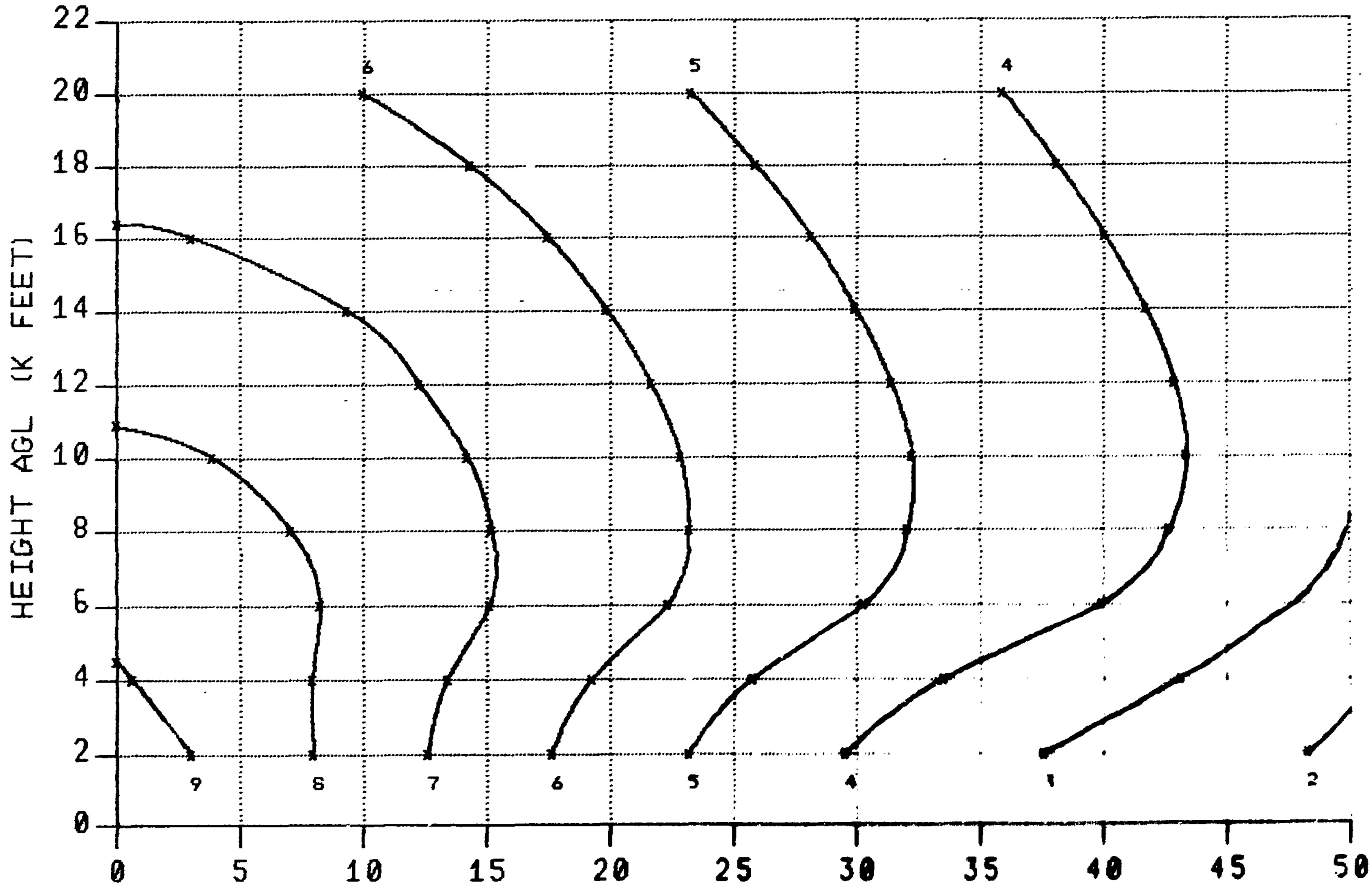
BKGND. REFLECTANCE: 15 TO 49 PERCENT
SOLAR ELEV. ANGLE : 56 TO 90 DEGREE
SURFACE VISIBILITY: 10 MILES (16.1 KM)
MIXING LYR. DEPTH : 3000 FEET



CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

CLOUD COVER: CLR-SCT

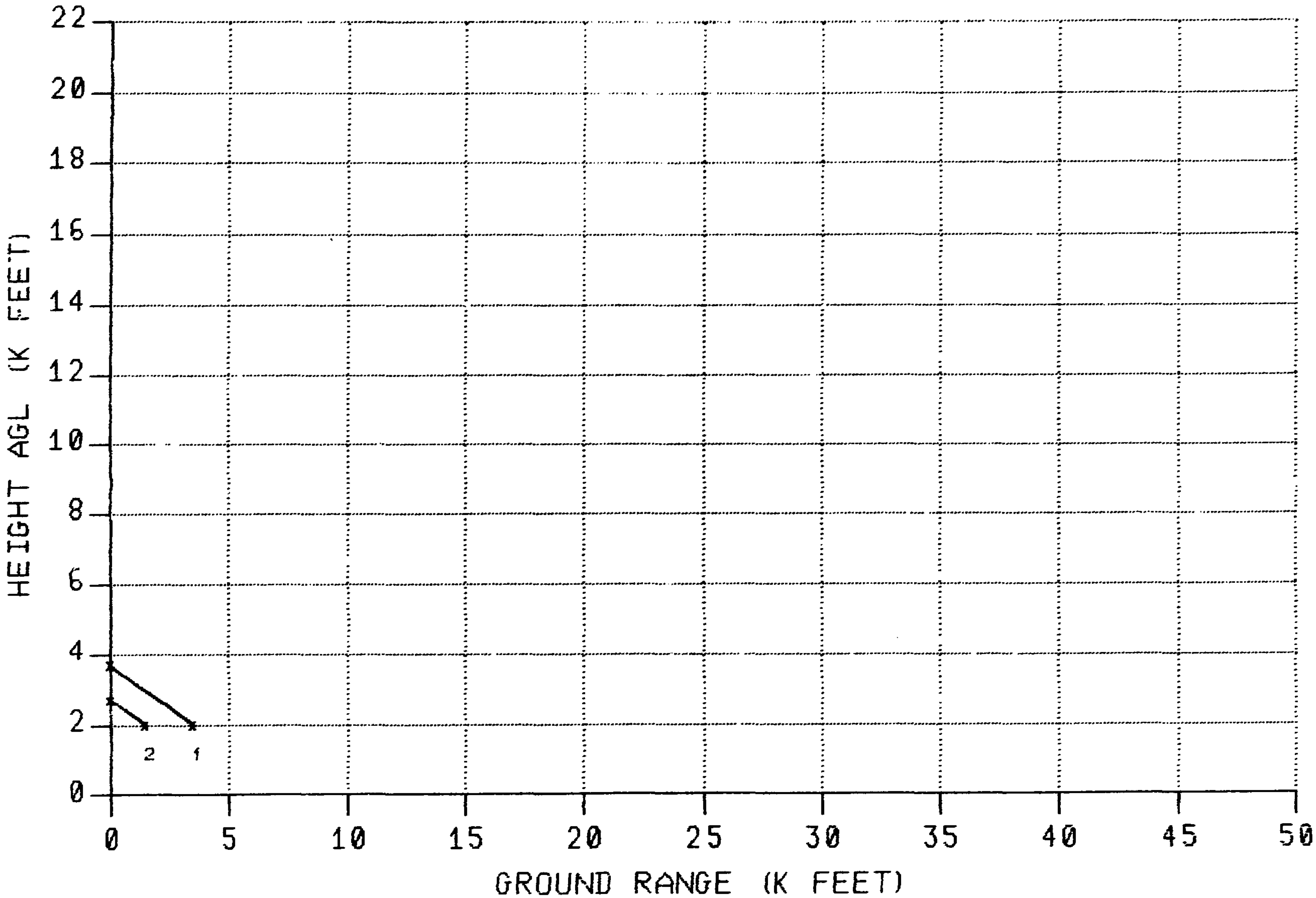
BKGND. REFLECTANCE: 15 TO 49 PERCENT
SOLAR ELEV. ANGLE : 56 TO 90 DEGREE
SURFACE VISIBILITY: 15 MILES (24.1 KM)
MIXING LYR. DEPTH : 3000 FEET



CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

CLOUD COVER: CLR-SCT

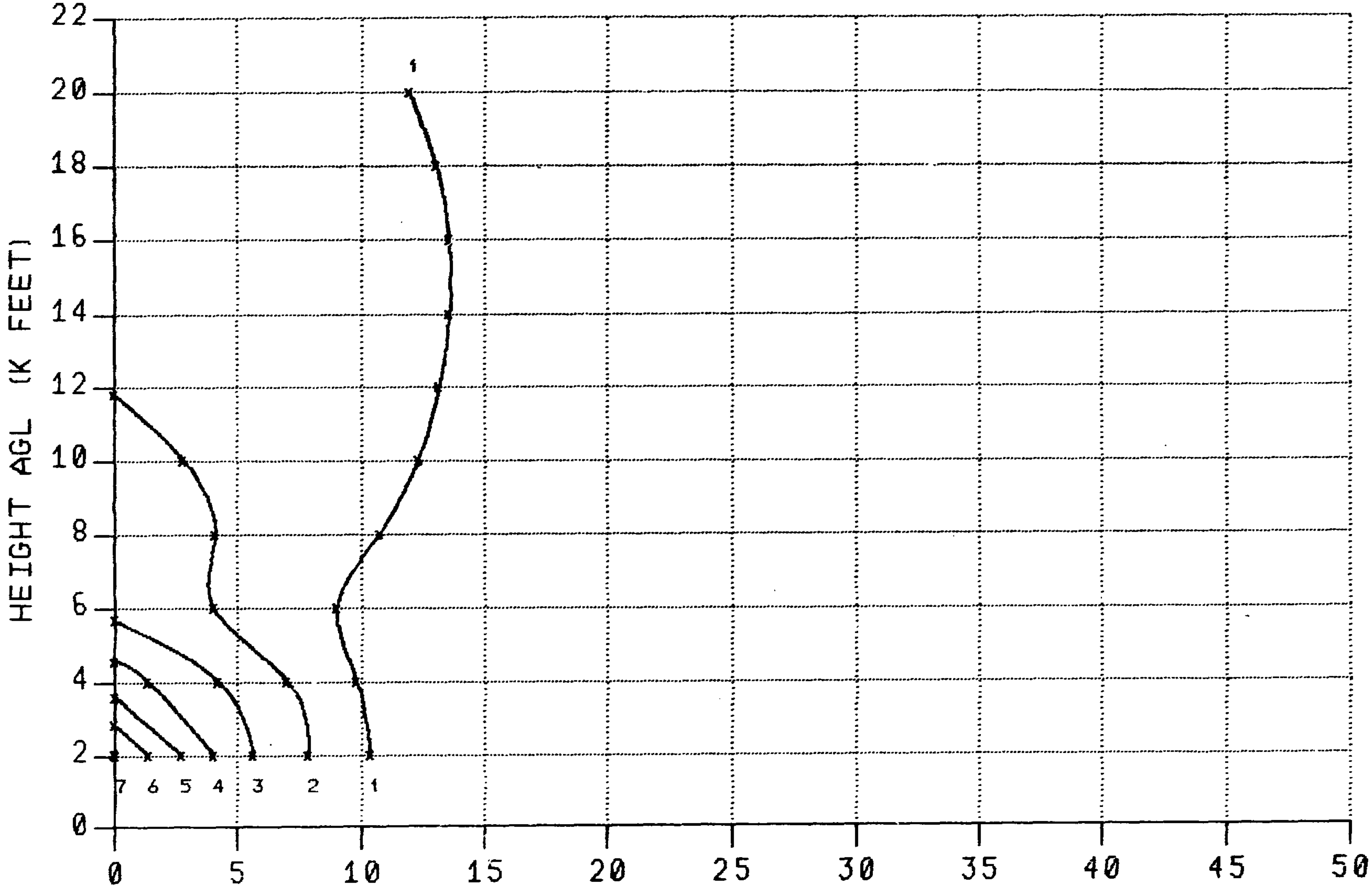
BKGND. REFLECTANCE: 15 TO 49 PERCENT
SOLAR ELEV. ANGLE : 56 TO 90 DEGREE
SURFACE VISIBILITY: 1 MILE (1.6 KM)
MIXING LYR. DEPTH : 6000 FEET



CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

CLOUD COVER: CLR-SCT

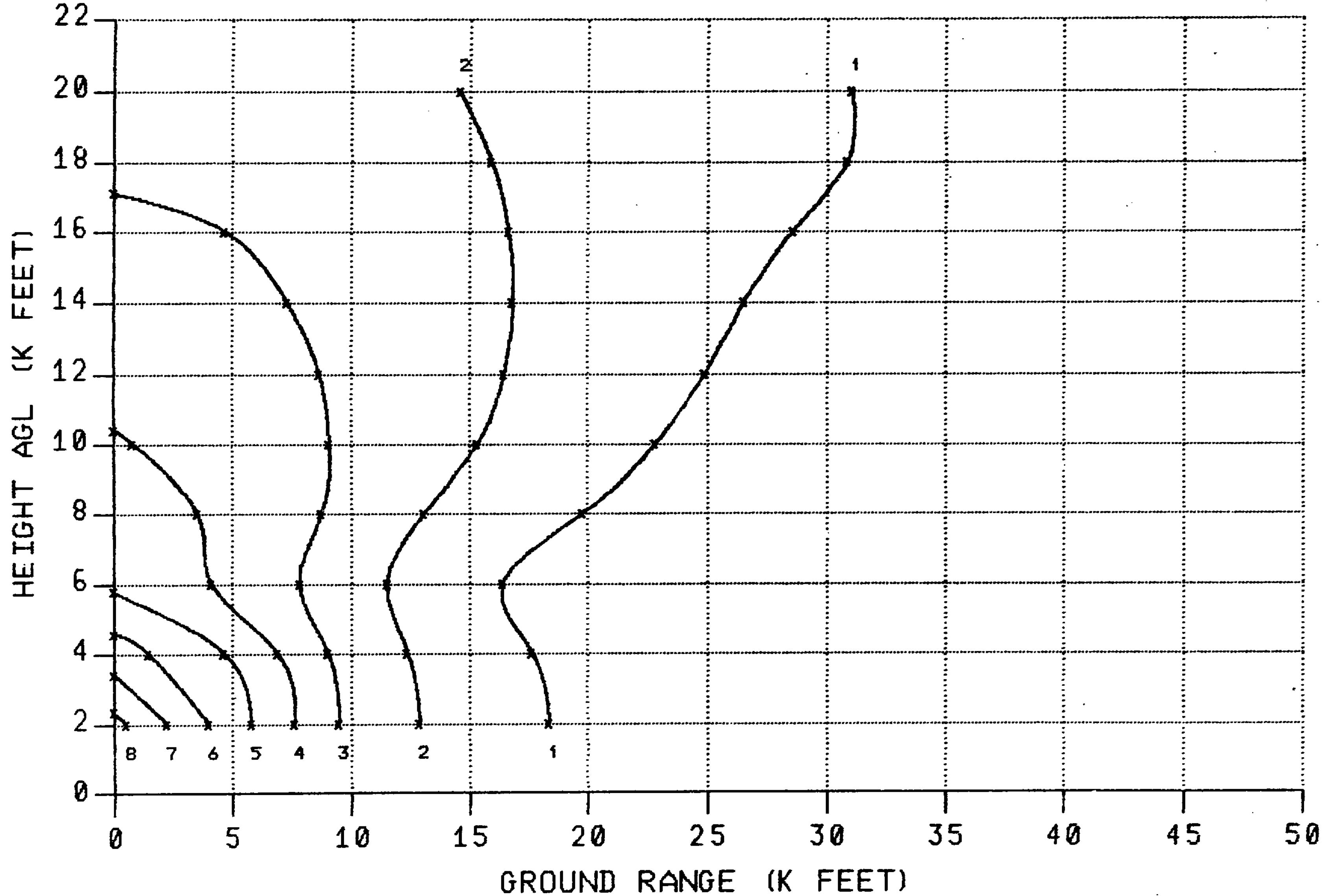
BKGND. REFLECTANCE: 15 TO 49 PERCENT
SOLAR ELEV. ANGLE : 56 TO 90 DEGREE
SURFACE VISIBILITY: 3 MILES (4.8 KM)
MIXING LYR. DEPTH : 6000 FEET



CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

- CLOUD COVER: CLR-SCT

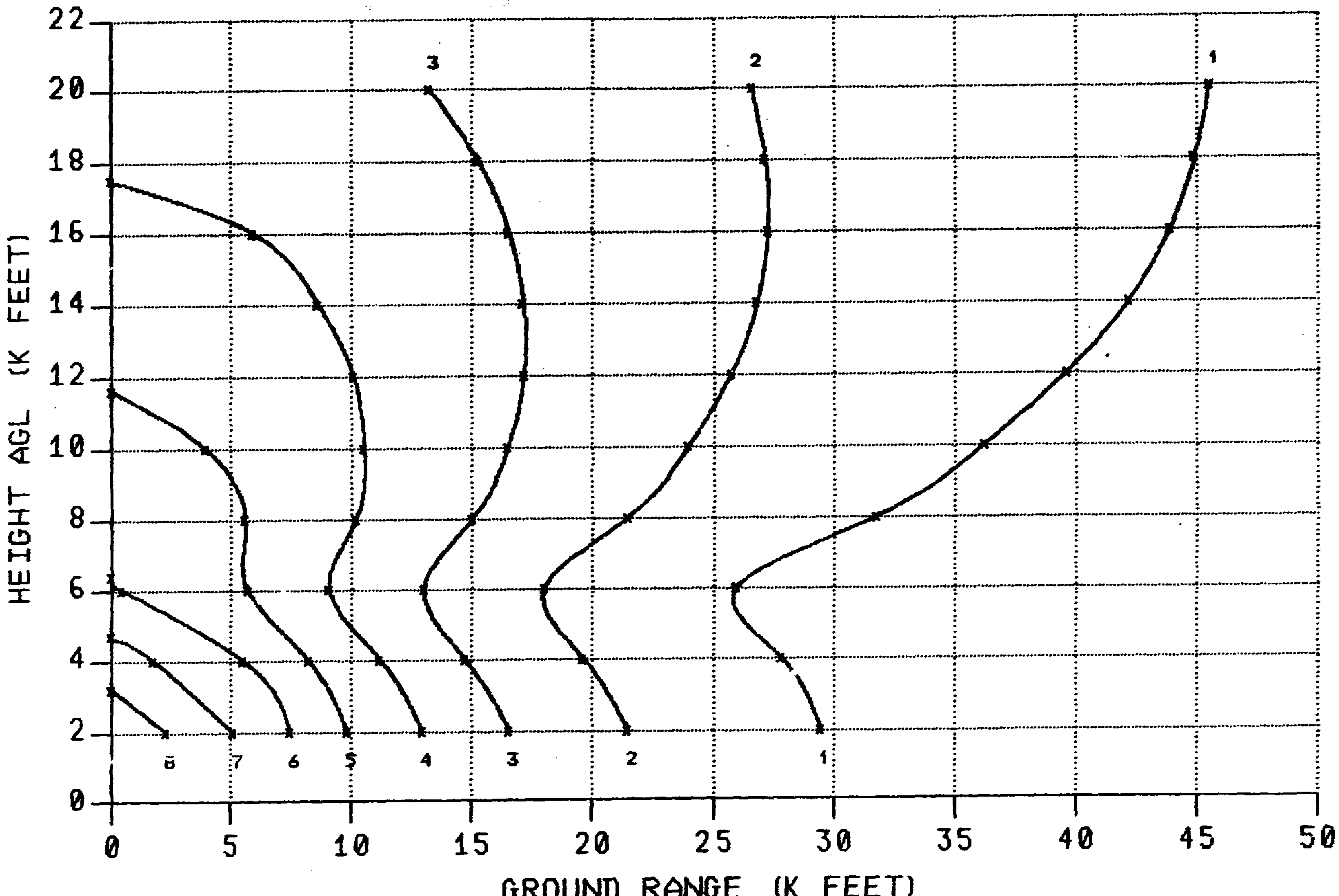
BKGND. REFLECTANCE: 15 TO 49 PERCENT
SOLAR ELEV. ANGLE : 56 TO 90 DEGREE
SURFACE VISIBILITY: 5 MILES (8.0 KM)
MIXING LYR. DEPTH : 6000 FEET



CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

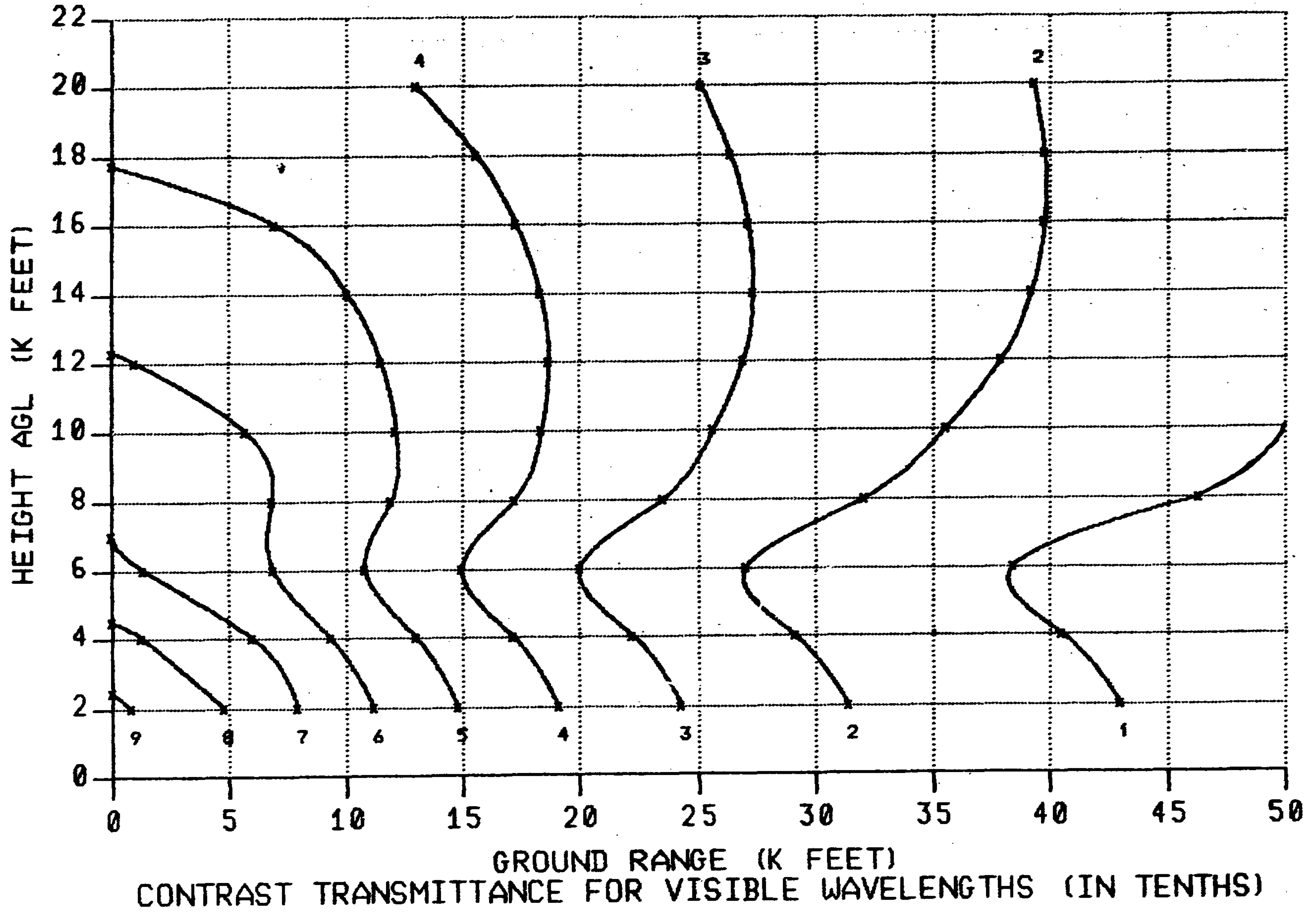
CLOUD COVER: CLR-SCT

BKGND. REFLECTANCE: 15 TO 49 PERCENT
SOLAR ELEV. ANGLE : 56 TO 90 DEGREE
SURFACE VISIBILITY: 7 MILES (11.3 KM)
MIXING LYR. DEPTH : 6000 FEET



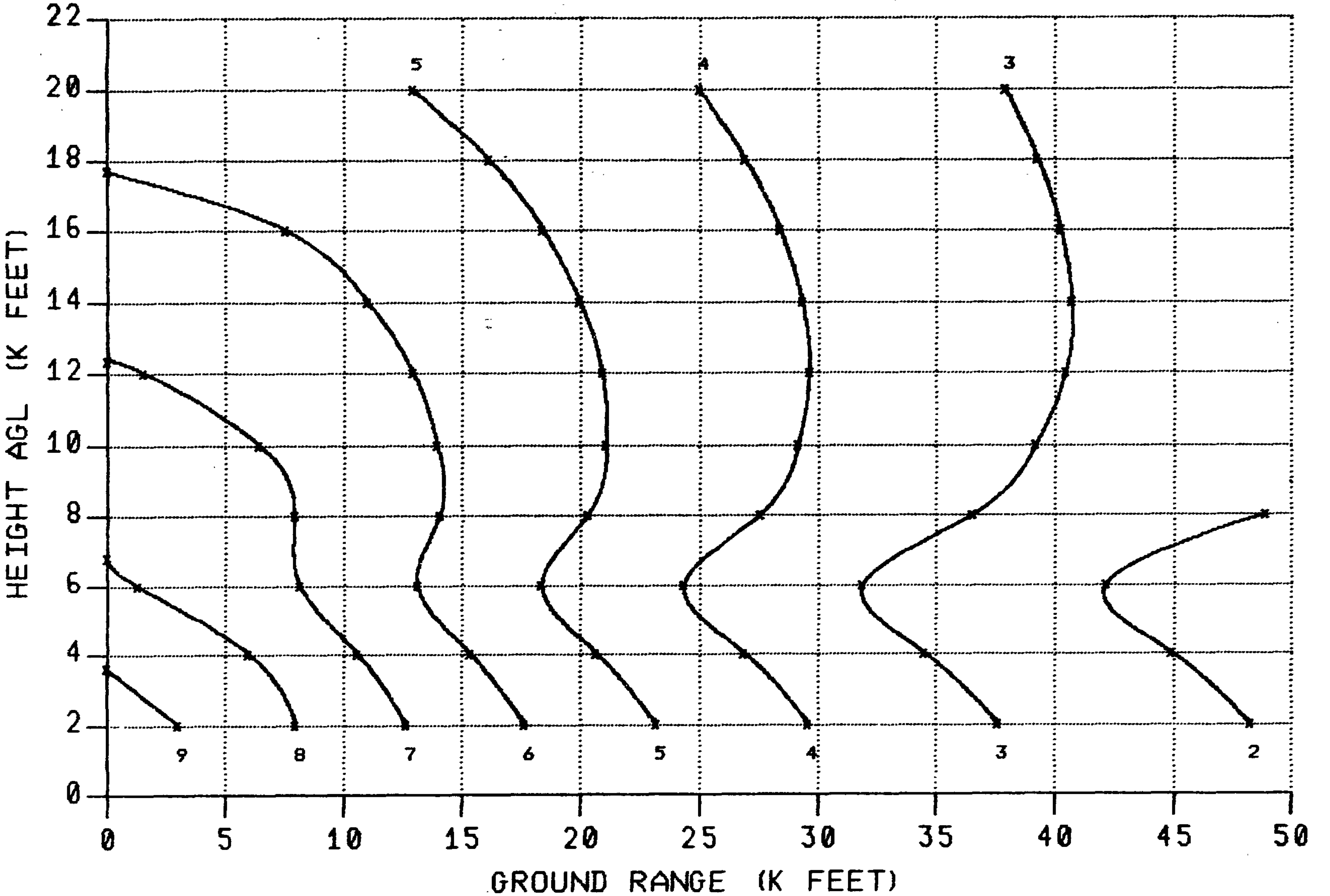
CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

SOLAR ELEV. ANGLE : 56 TO 90 DEGREE
SURFACE VISIBILITY: 10 MILES (16.1 KM)
MIXING LYR. DEPTH : 6000 FEET



CLOUD COVER: CLR-SCT

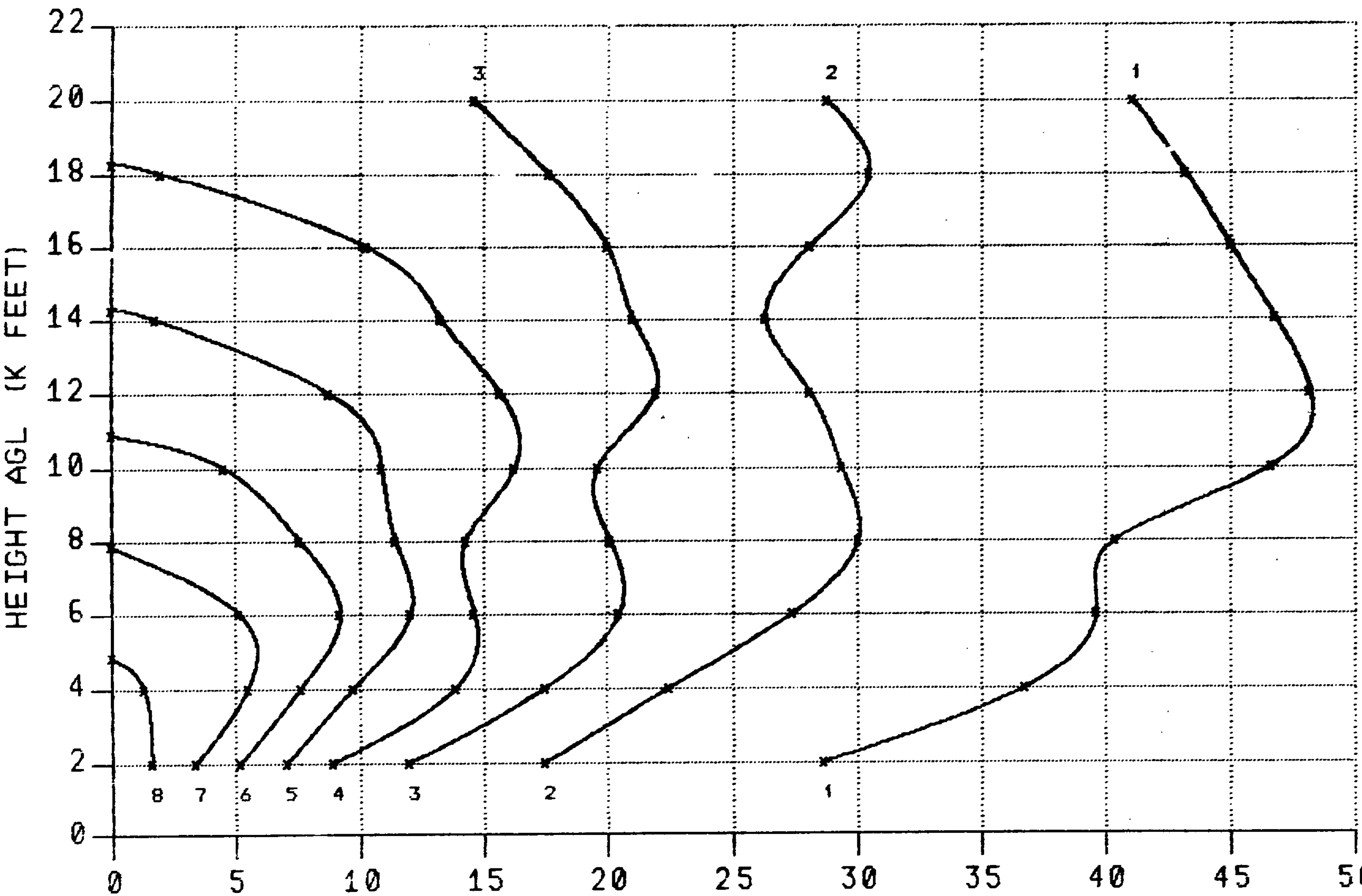
BKGND. REFLECTANCE: 15 TO 49 PERCENT
SOLAR ELEV. ANGLE : 56 TO 90 DEGREE
SURFACE VISIBILITY: 15 MILES (24.1 KM)
MIXING LYR. DEPTH : 6000 FEET



CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

CLOUD COVER:. CLR-SCT

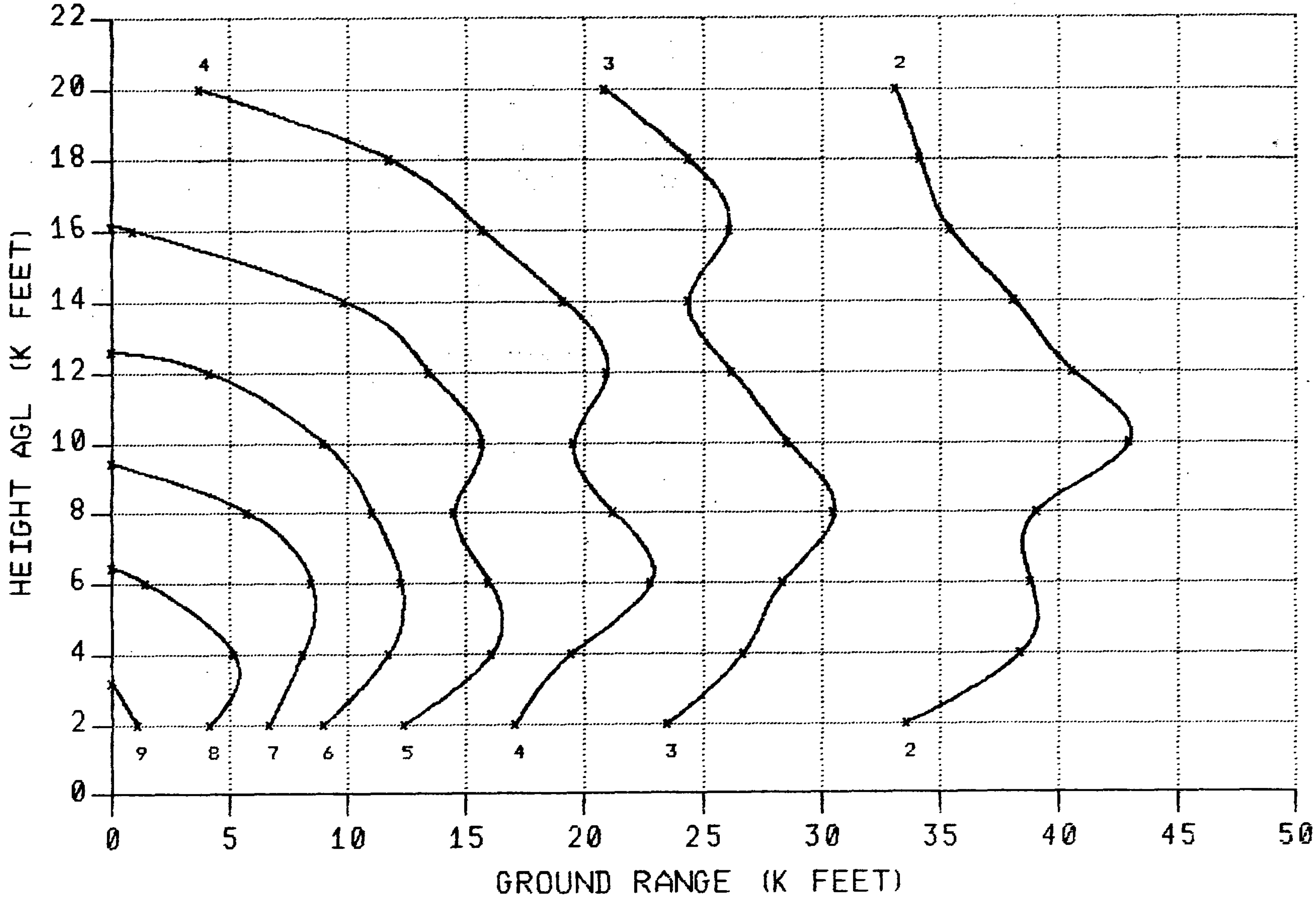
BKGND. REFLECTANCE: 50 TO 99 PERCENT
SOLAR ELEV. ANGLE : 0 TO 10 DEGREE
SURFACE VISIBILITY: 1 MILE (1.6 KM)
MIXING LYR. DEPTH : BELOW 50 FEET



GROUND RANGE (K FEET)
CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

CLOUD COVER: CLR-SCT

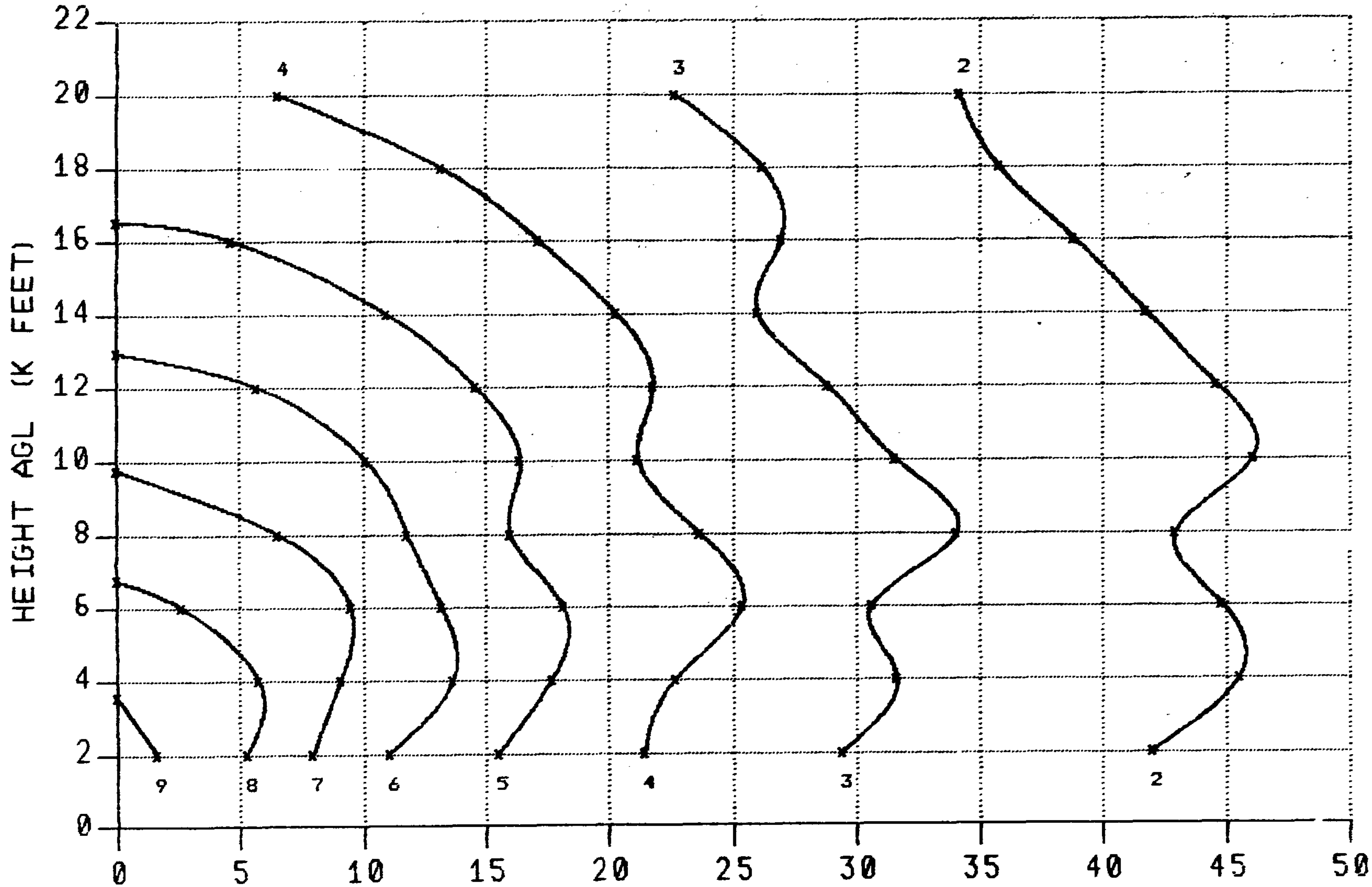
BKGND. REFLECTANCE: 50 TO 99 PERCENT
SOLAR ELEV. ANGLE : 0 TO 10 DEGREE
SURFACE VISIBILITY: 3 MILES (4.8 KM)
MIXING LYR. DEPTH : BELOW 50 FEET



CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

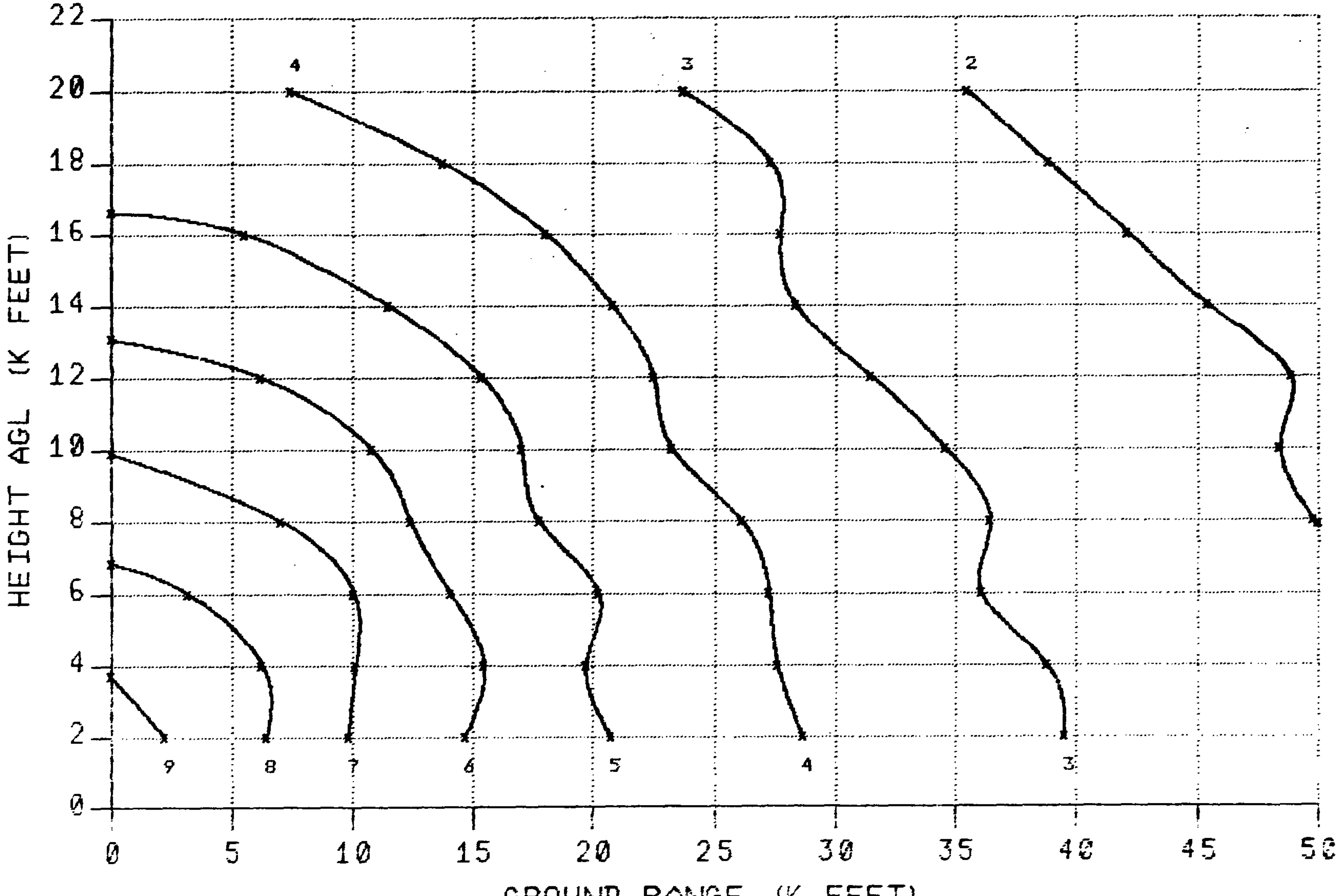
CLOUD COVER: CLR-SCT

BKGND. REFLECTANCE: 50 TO 99 PERCENT
SOLAR ELEV. ANGLE : 0 TO 10 DEGREE
SURFACE VISIBILITY: 5 MILES (8.0 KM)
MIXING LYR. DEPTH : BELOW 50 FEET



GROUND RANGE (K FEET)
CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

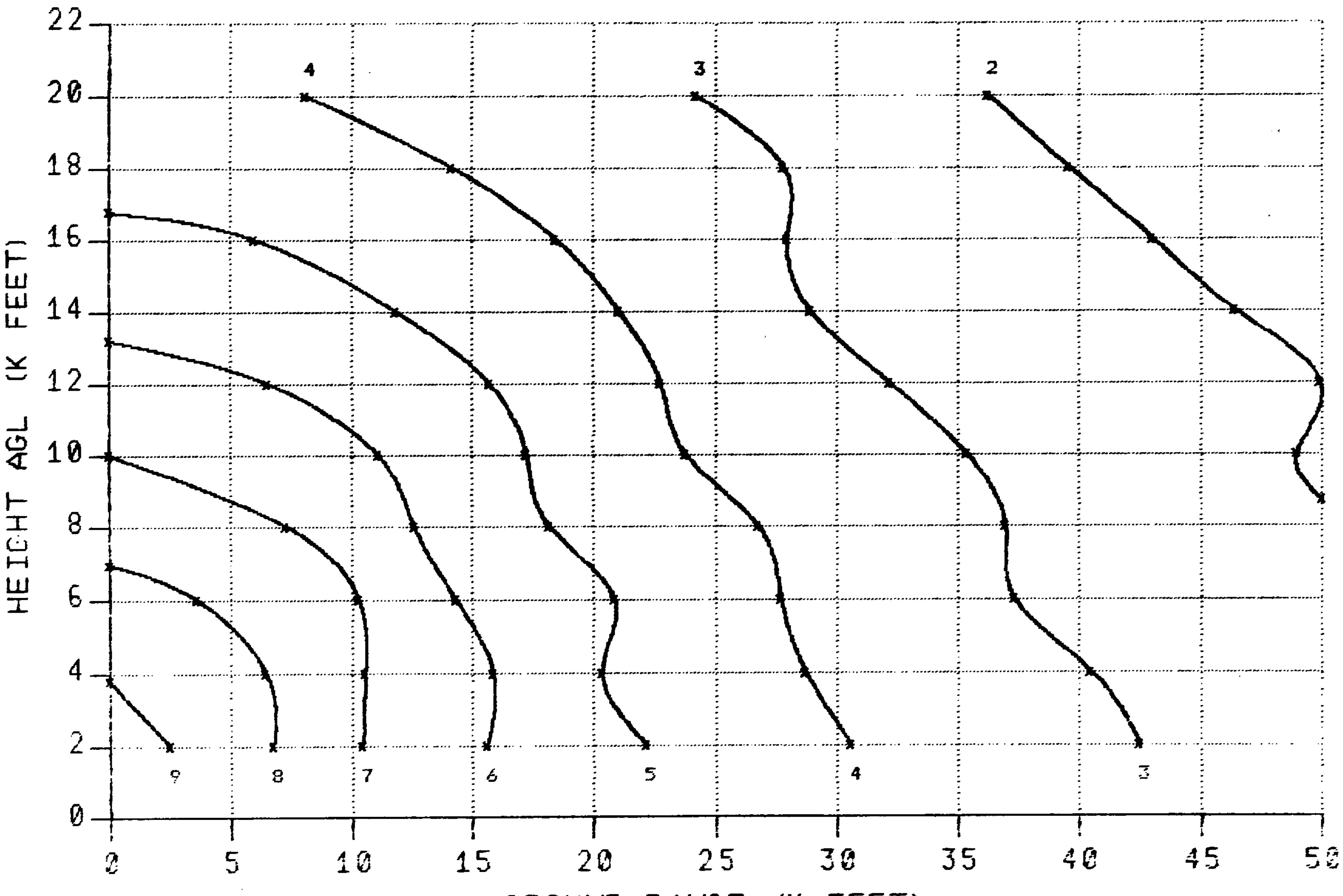
CLOUD COVER: CLR-SCT BKGND. REFLECTANCE: 50 TO 99 PERCENT
SOLAR ELEV. ANGLE : 0 TO 10 DEGREE
SURFACE VISIBILITY: 7 MILES (11.3 KM)
MIXING LYR. DEPTH : BELOW 50 FEET



CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

CLOUD COVER: CLR-SCT

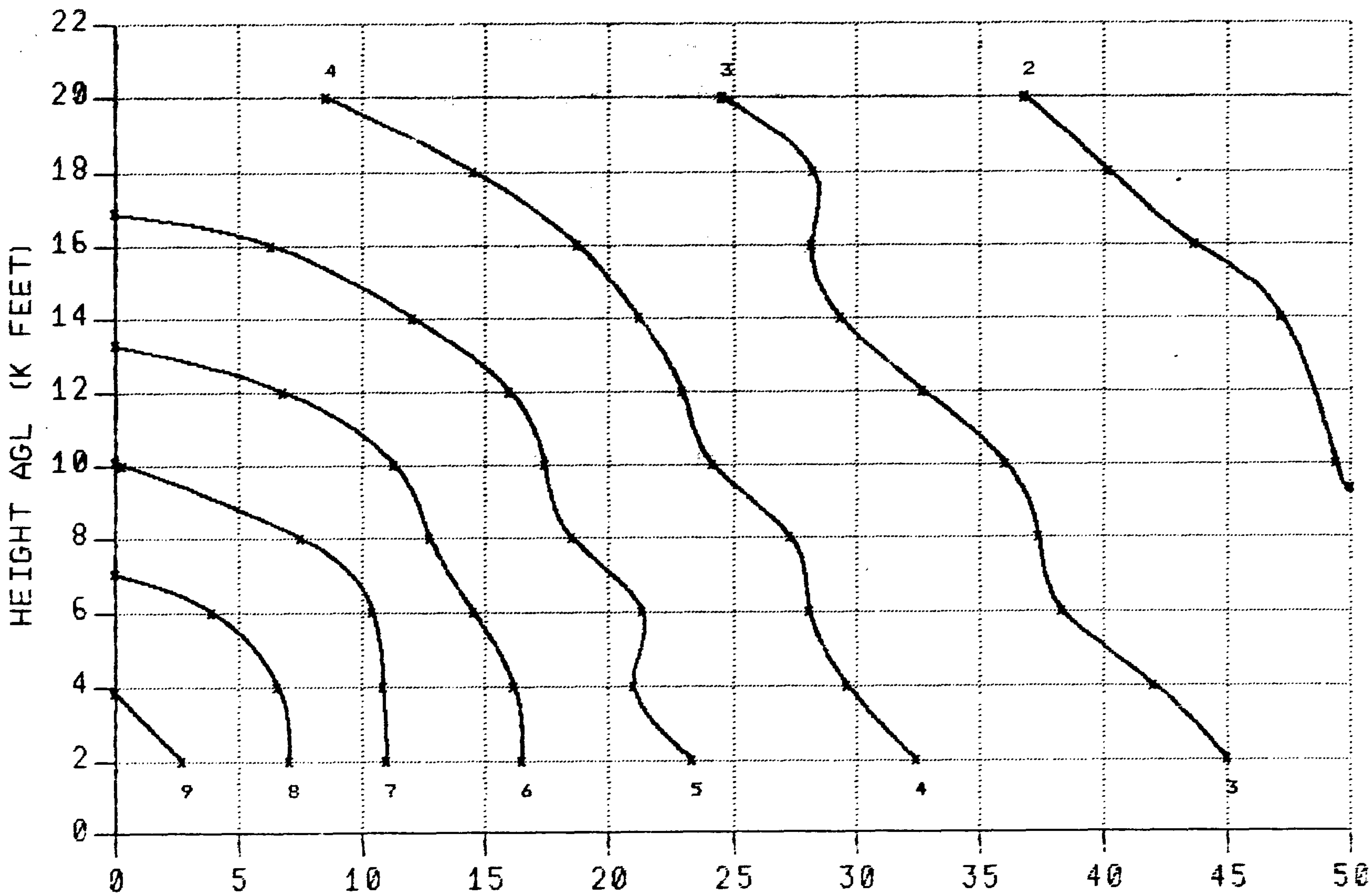
BKGND. REFLECTANCE: 50 TO 99 PERCENT
SOLAR ELEV. ANGLE : 0 TO 10 DEGREE
SURFACE VISIBILITY: 10 MILES (16.1 KM)
MIXING LYR. DEPTH : BELOW 50 FEET



CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

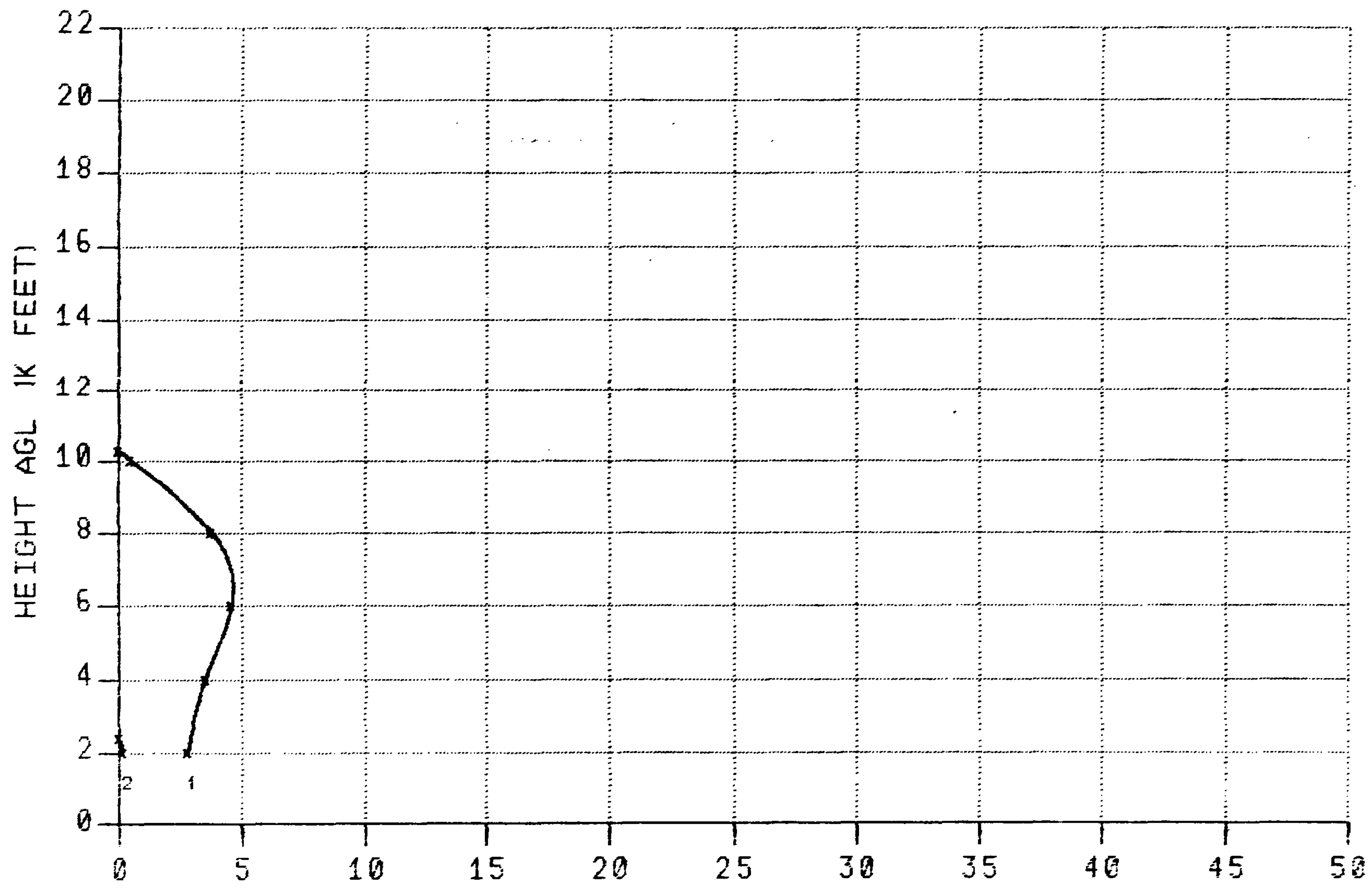
CLOUD COVER: CLR-SCT

BKGND. REFLECTANCE: 50 TO 99 PERCENT
SOLAR ELEV. ANGLE : 0 TO 10 DEGREE
SURFACE VISIBILITY: 15 MILES (24.1 KM)
MIXING LYR. DEPTH : BELOW 50 FEET



CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

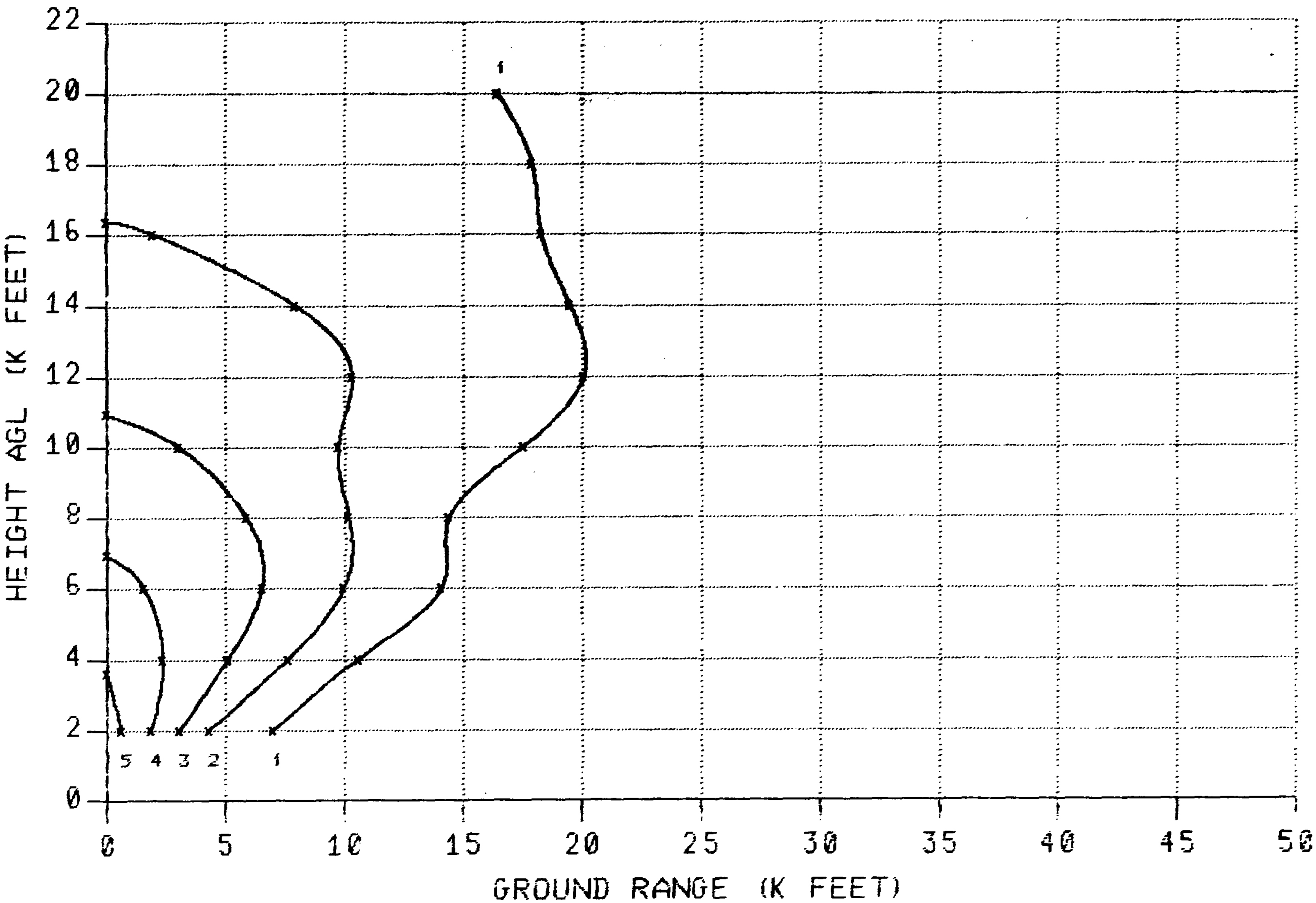
CLOUD COVER: CLR-SCT BKGND. REFLECTANCE: 50 TO 99 PERCENT
SOLAR ELEV. ANGLE : 0 TO 10 DEGREE
SURFACE VISIBILITY: 1 MILE (1.6 KM)
MIXING LYR. DEPTH : 1500 FEET



CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

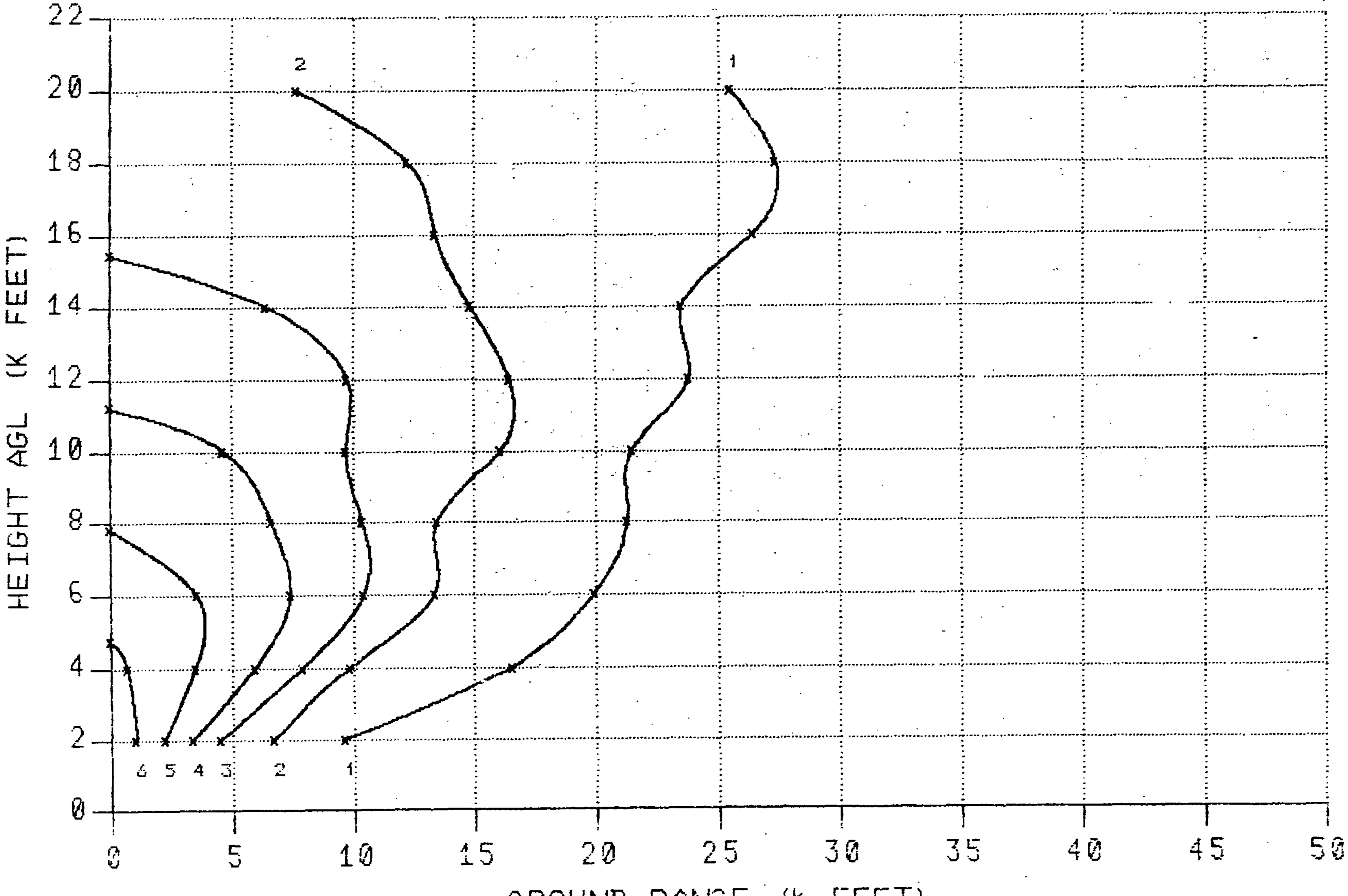
CLOUD COVER: CLR-SCT

BKGND. REFLECTANCE: 50 TO 99 PERCENT
SOLAR ELEV. ANGLE : 0 TO 10 DEGREE
SURFACE VISIBILITY: 3 MILES (4.8 KM)
MIXING LYR. DEPTH : 1500 FEET



CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

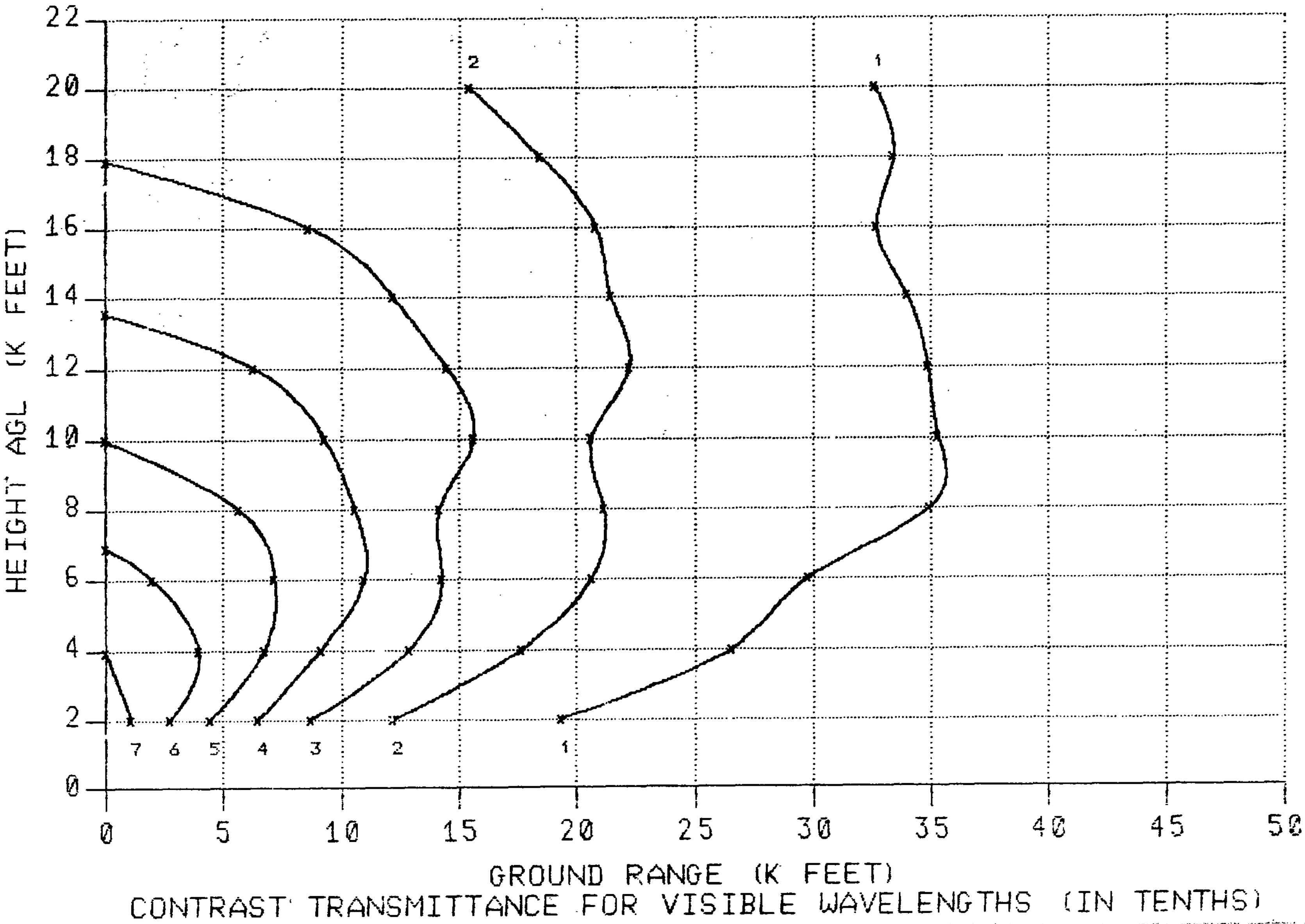
CLOUD COVER: CLR-SCT BKGND. REFLECTANCE: 50 TO 99 PERCENT
SOLAR ELEV. ANGLE : 0 TO 10 DEGREE
SURFACE VISIBILITY: 5 MILES (8.0 KM)
MIXING LYR. DEPTH : 1500 FEET



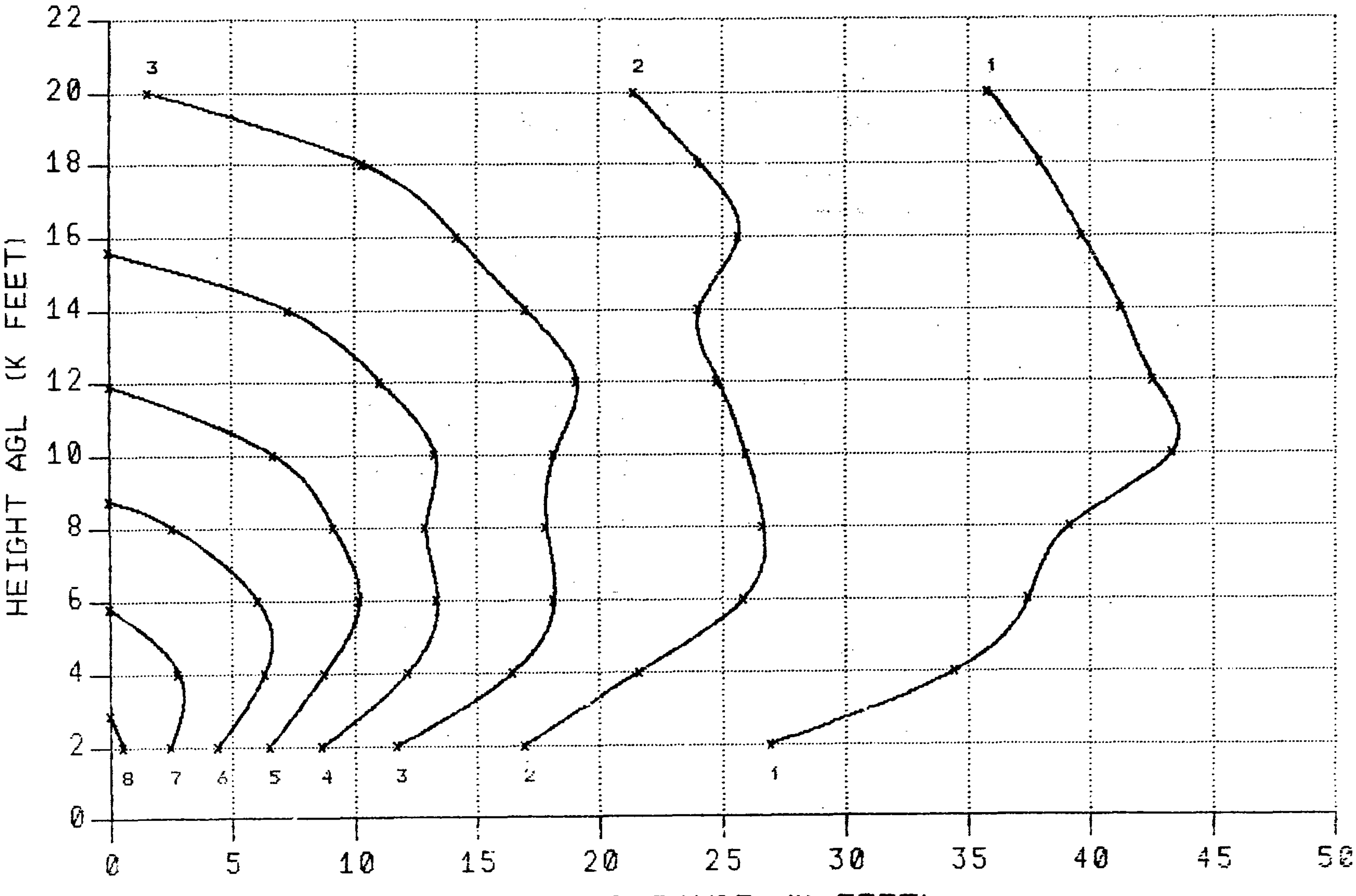
CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

CLOUD COVER: CLR-SCT

BKGND. REFLECTANCE: 50 TO 99 PERCENT
SOLAR ELEV. ANGLE : 0 TO 10 DEGREE
SURFACE VISIBILITY: 7 MILES (11.3 KM)
MIXING LYR. DEPTH : 1500 FEET



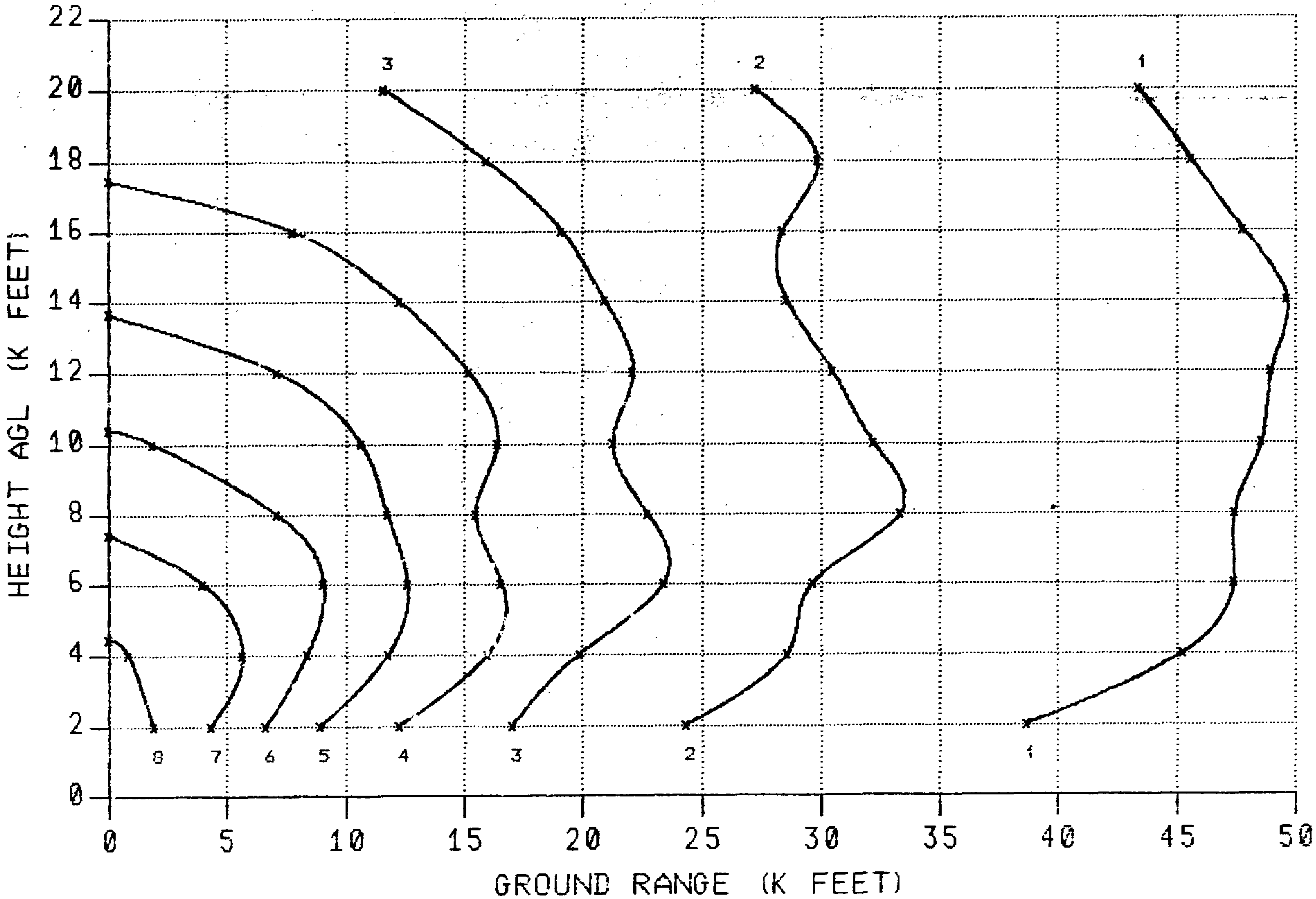
CLOUD COVER: CLR-SCT
BKGND. REFLECTANCE: 50 TO 99 PERCENT
SOLAR ELEV. ANGLE : 0 TO 10 DEGREE
SURFACE VISIBILITY: 10 MILES (16.1 KM)
MIXING LYR. DEPTH : 1500 FEET



CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

CLOUD COVER: CLR-SCT

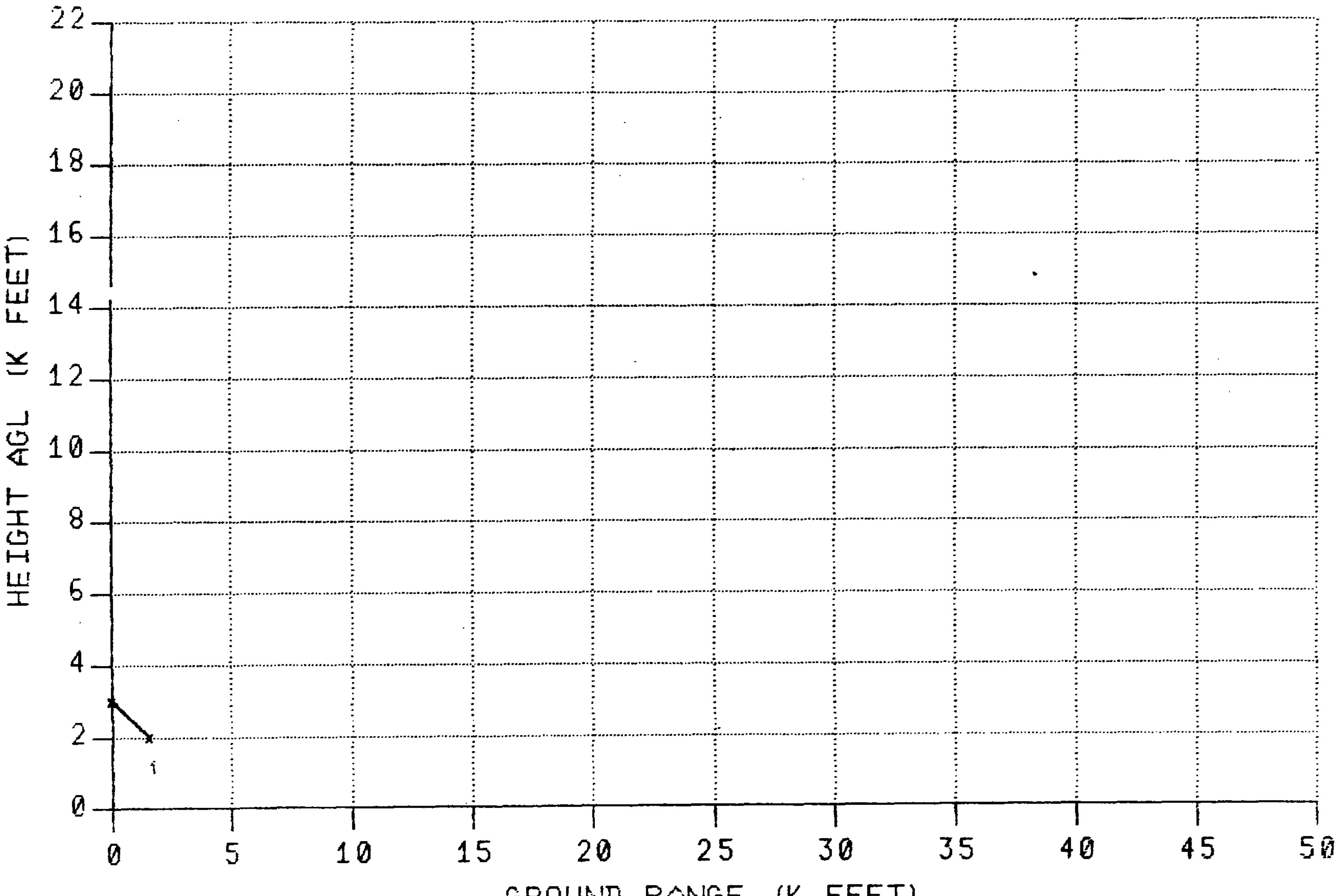
BKGND. REFLECTANCE: 50 TO 99 PERCENT
SOLAR ELEV. ANGLE : 0 TO 10 DEGREE
SURFACE VISIBILITY: 15 MILES (24.1 KM)
MIXING LYR. DEPTH : 1500 FEET



CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

CLOUD COVER: CLR-SCT

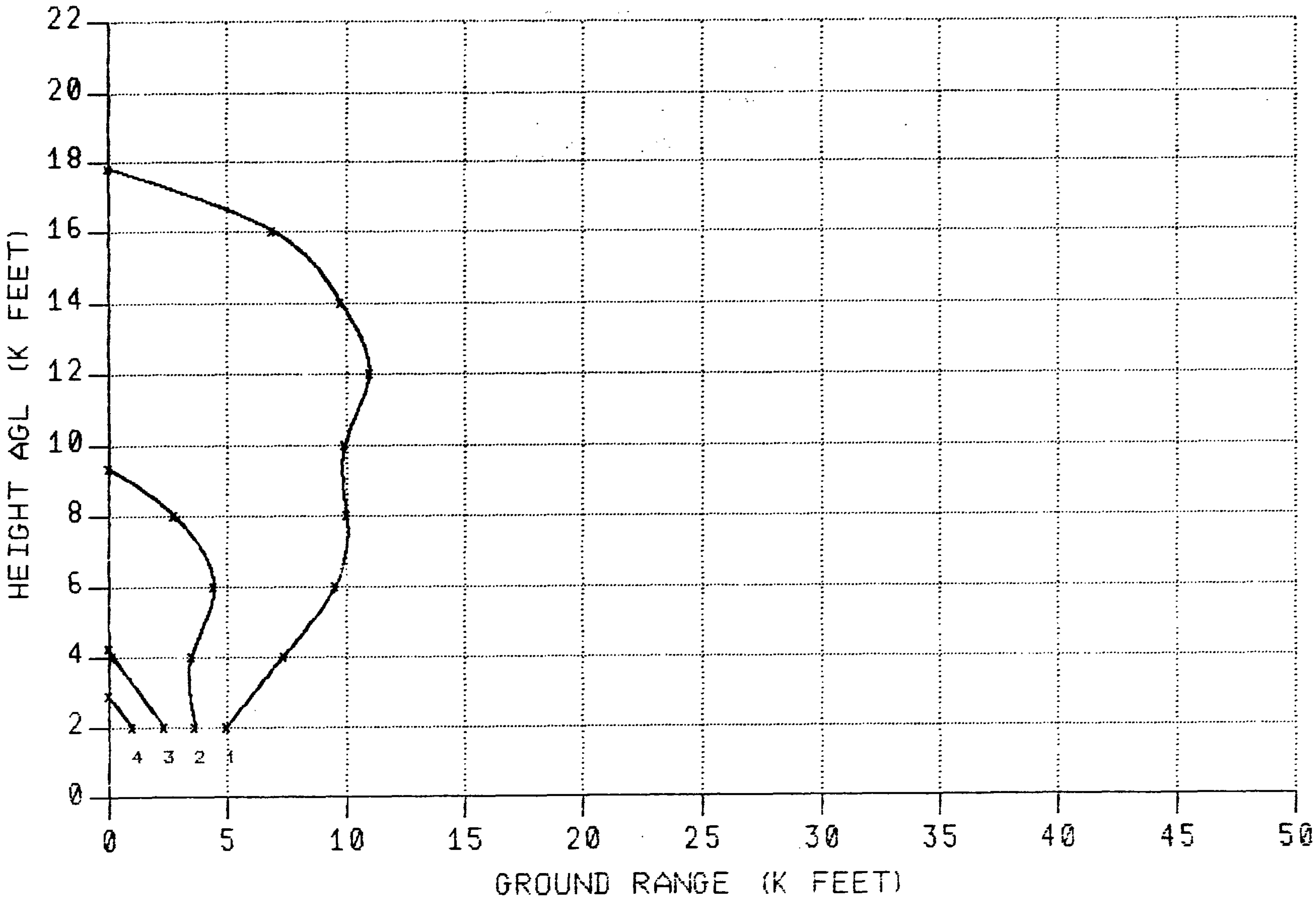
BKGND. REFLECTANCE: 50 TO 99 PERCENT
SOLAR ELEV. ANGLE : 0 TO 10 DEGREE
SURFACE VISIBILITY: 1 MILE (1.6 KM)
MIXING LYR. DEPTH : 3000 FEET



CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

CLOUD COVER: CLR-SCT

BKGND. REFLECTANCE: 50 TO 99 PERCENT
SOLAR ELEV. ANGLE : 0 TO 10 DEGREE
SURFACE VISIBILITY: 3 MILES (4.8 KM)
MIXING LYR. DEPTH : 3000 FEET



CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

CLOUD COVER: CLR-SCT

BKGND. REFLECTANCE: 50 TO 99 PERCENT
SOLAR ELEV. ANGLE : 0 TO 10 DEGREE
SURFACE VISIBILITY: 5 MILES (8.0 KM)
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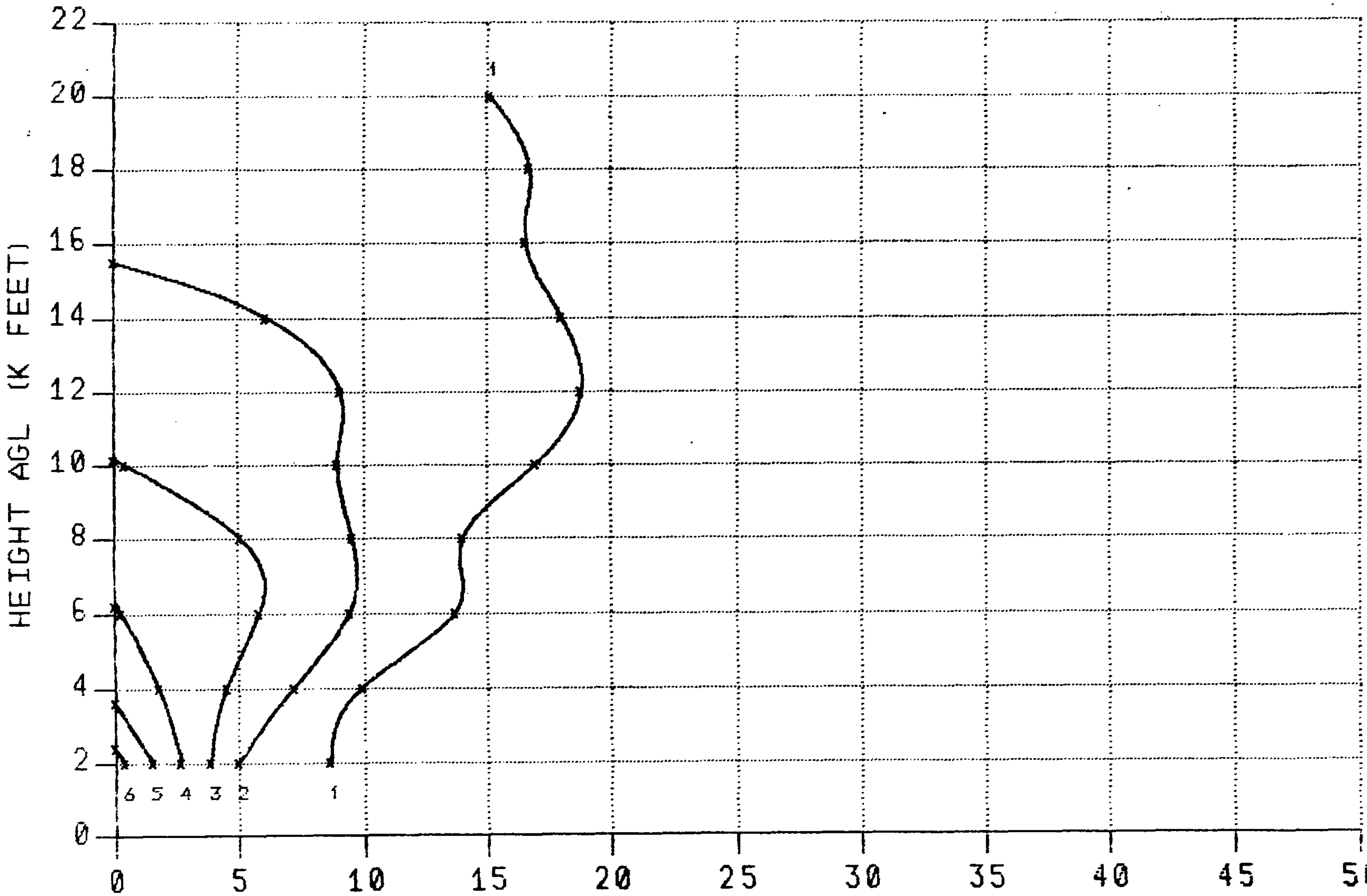
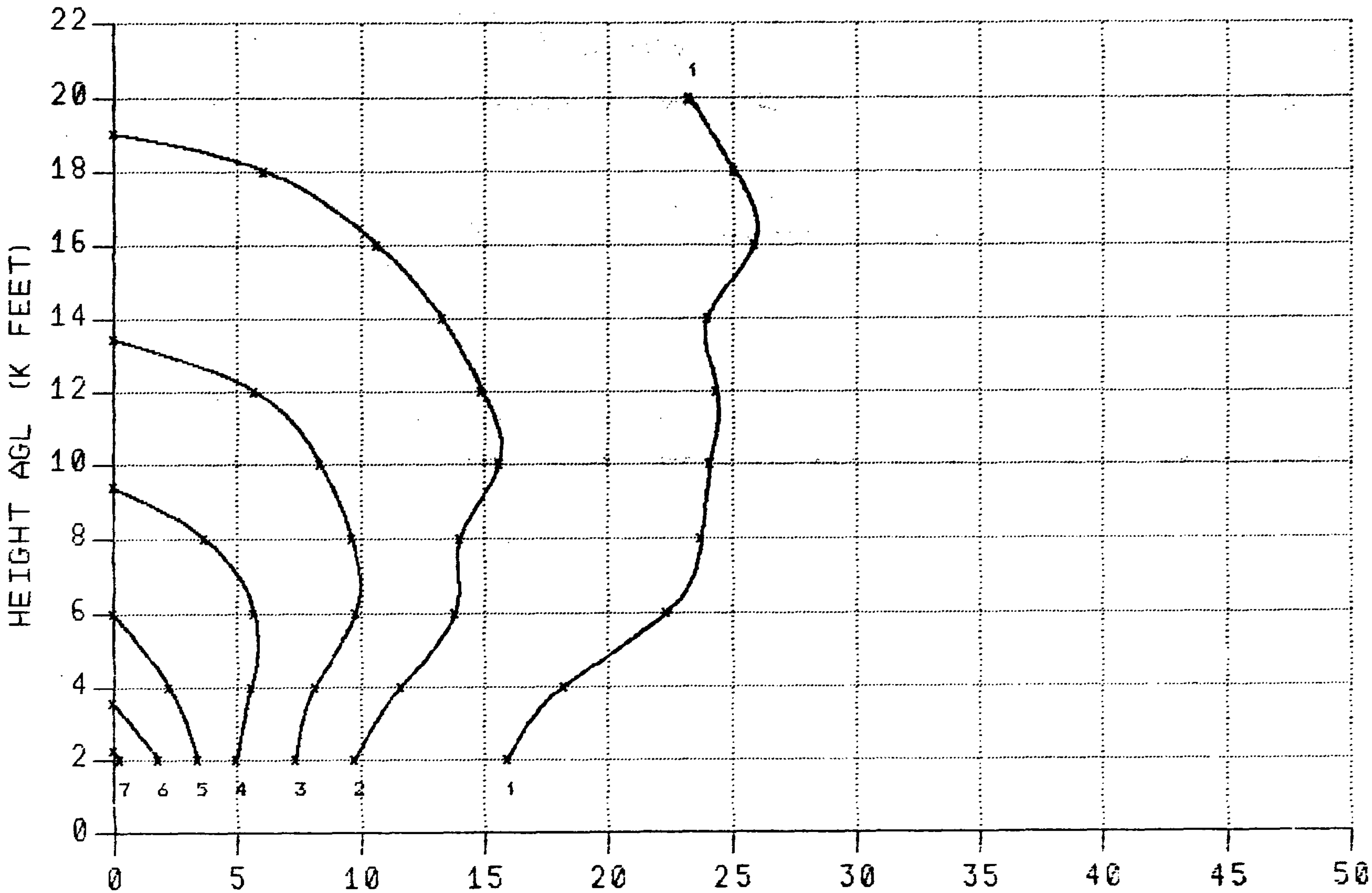


CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

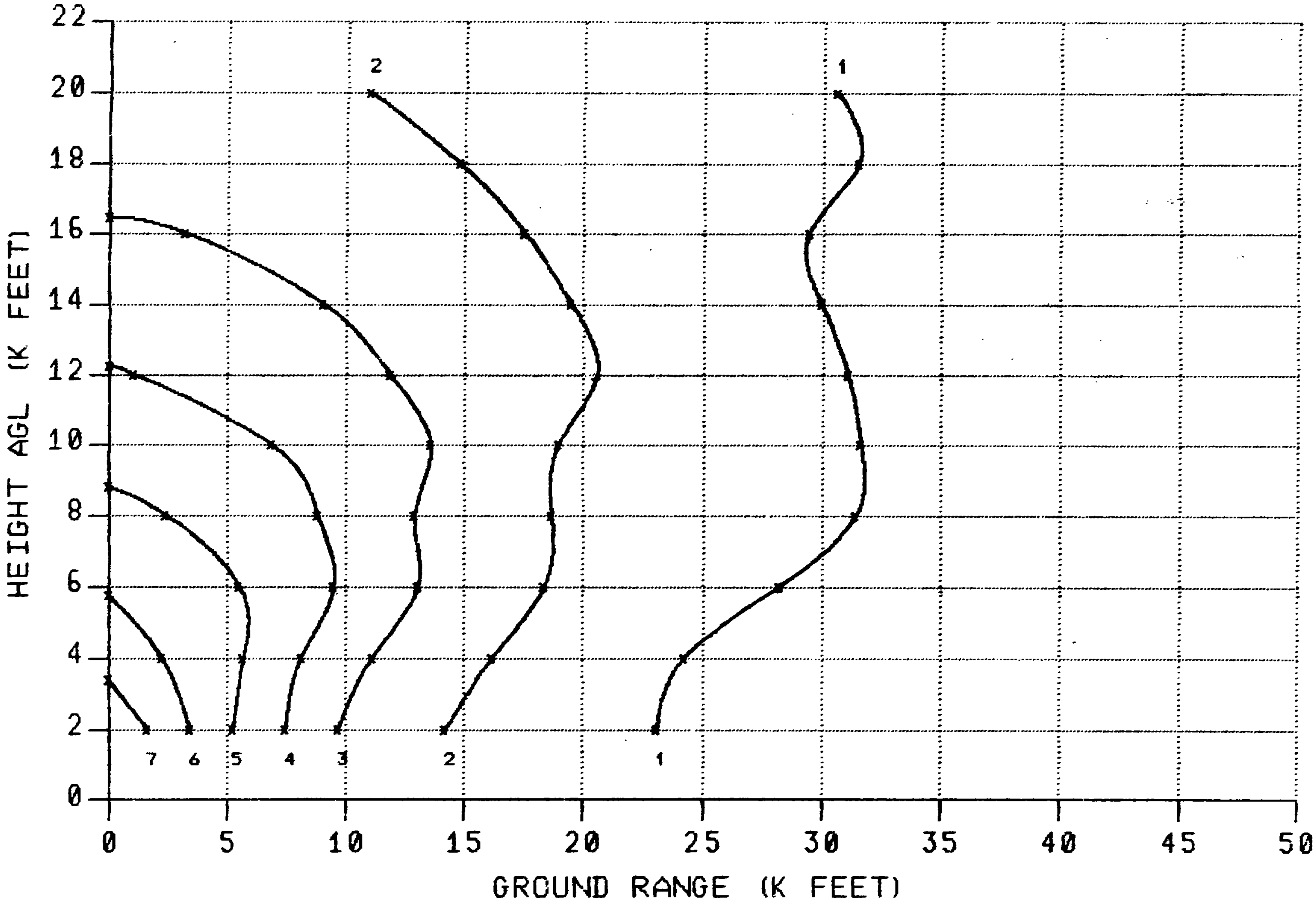
CLOUD COVER: CLR-SCT

BKGND. REFLECTANCE: 50 TO 99 PERCENT
SOLAR ELEV. ANGLE : 0 TO 10 DEGREE
SURFACE VISIBILITY: 7 MILES (11.3 KM)
MIXING LYR. DEPTH : 3000 FEET



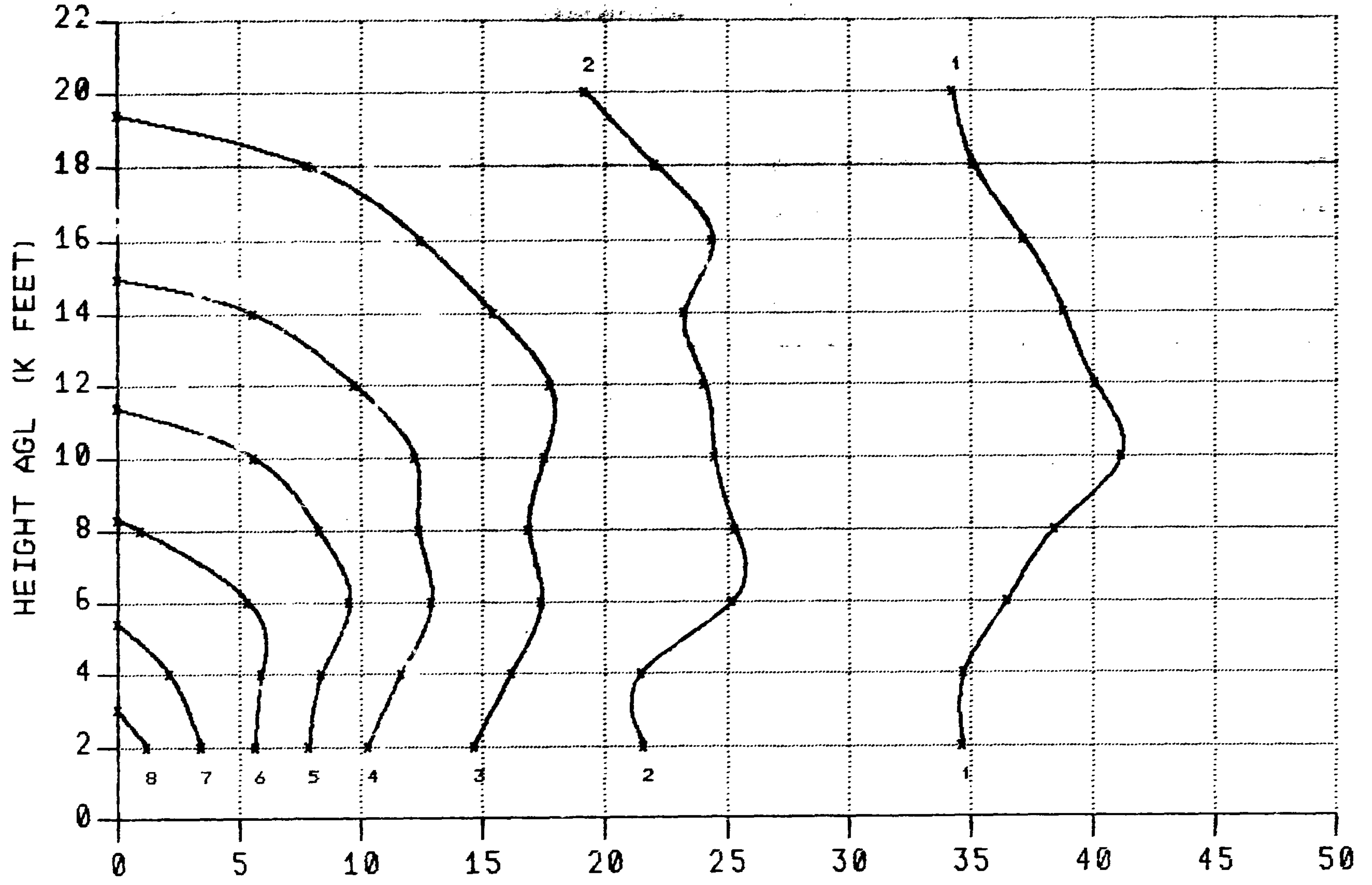
CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

CLOUD COVER: CLR-SCT BKGND. REFLECTANCE: 50 TO 99 PERCENT
SOLAR ELEV. ANGLE : 0 TO 10 DEGREE
SURFACE VISIBILITY: 10 MILES (16.1 KM)
MIXING LYR. DEPTH : 3000 FEET



CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

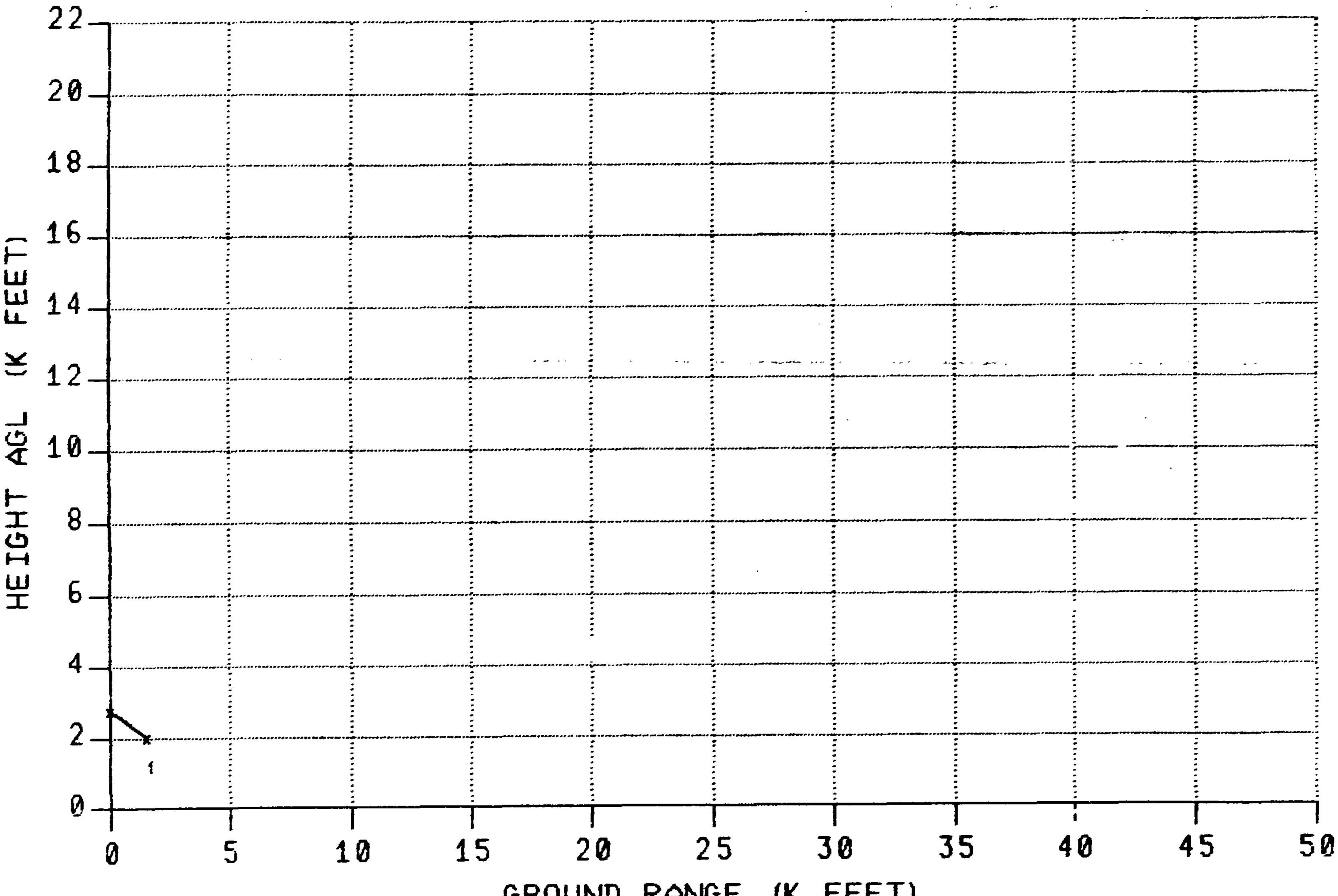
CLOUD COVER: CLR-SCT BKGND. REFLECTANCE: 50 TO 99 PERCENT
SOLAR ELEV. ANGLE : 0 TO 10 DEGREE
SURFACE VISIBILITY: 15 MILES (24.1 KM)
MIXING LYR. DEPTH : 3000 FEET



CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

CLOUD COVER: CLR-SCT

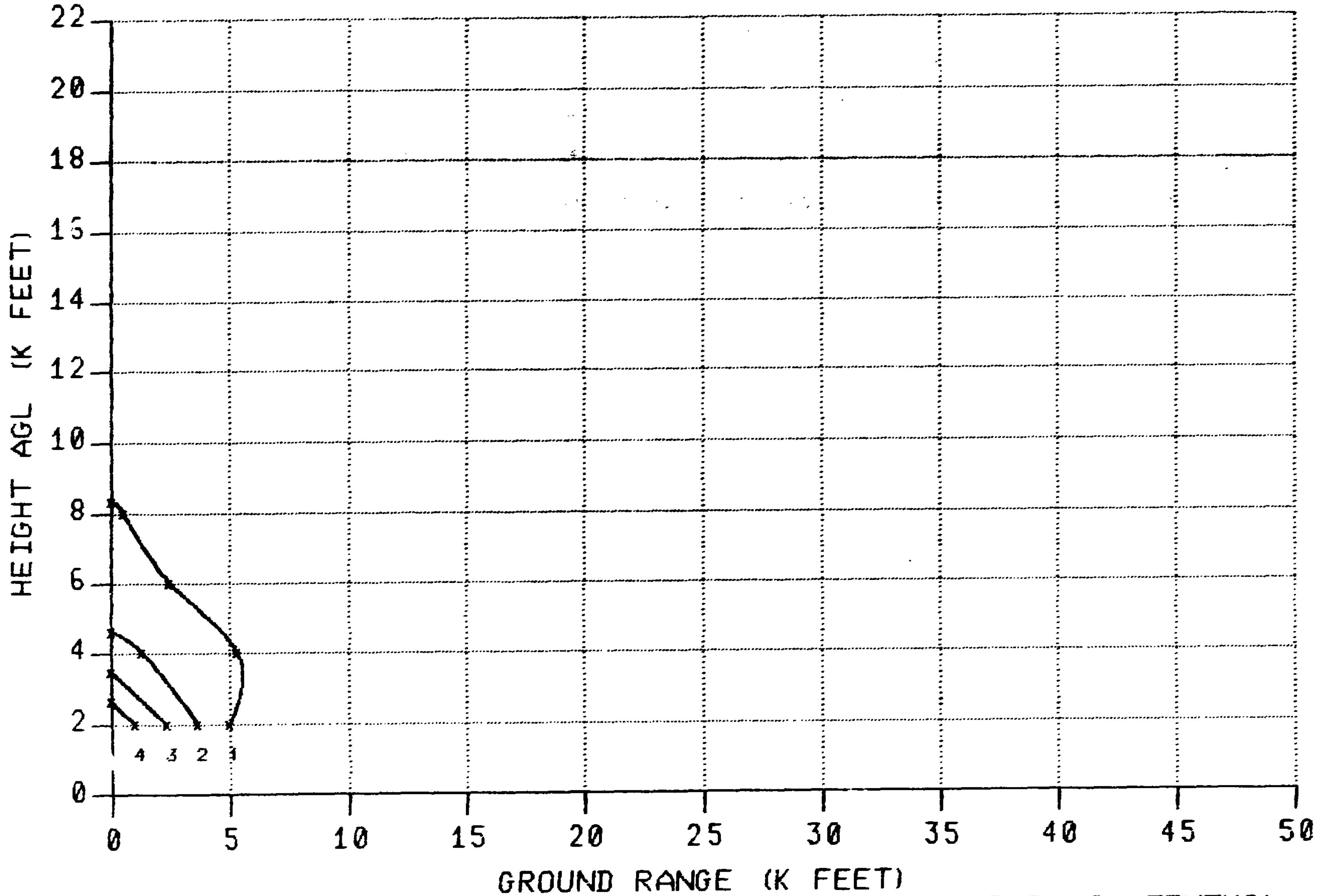
BKGND. REFLECTANCE: 50 TO 99 PERCENT
SOLAR ELEV. ANGLE : 0 TO 10 DEGREE
SURFACE VISIBILITY: 1 MILE (1.6 KM)
MIXING LYR. DEPTH : 6000 FEET



CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

CLOUD COVER: CLR-SCT

BKGND. REFLECTANCE: 50 TO 99 PERCENT
SOLAR ELEV. ANGLE : 0 TO 10 DEGREE
SURFACE VISIBILITY: 3 MILES (4.8 KM)
MIXING LYR. DEPTH : 6000 FEET



CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

CLOUD COVER: CLR-SCT BKGND. REFLECTANCE: 50 TO 99 PERCENT
SOLAR ELEV. ANGLE : 0 TO 10 DEGREE
SURFACE VISIBILITY: 5 MILES (8.0 KM)
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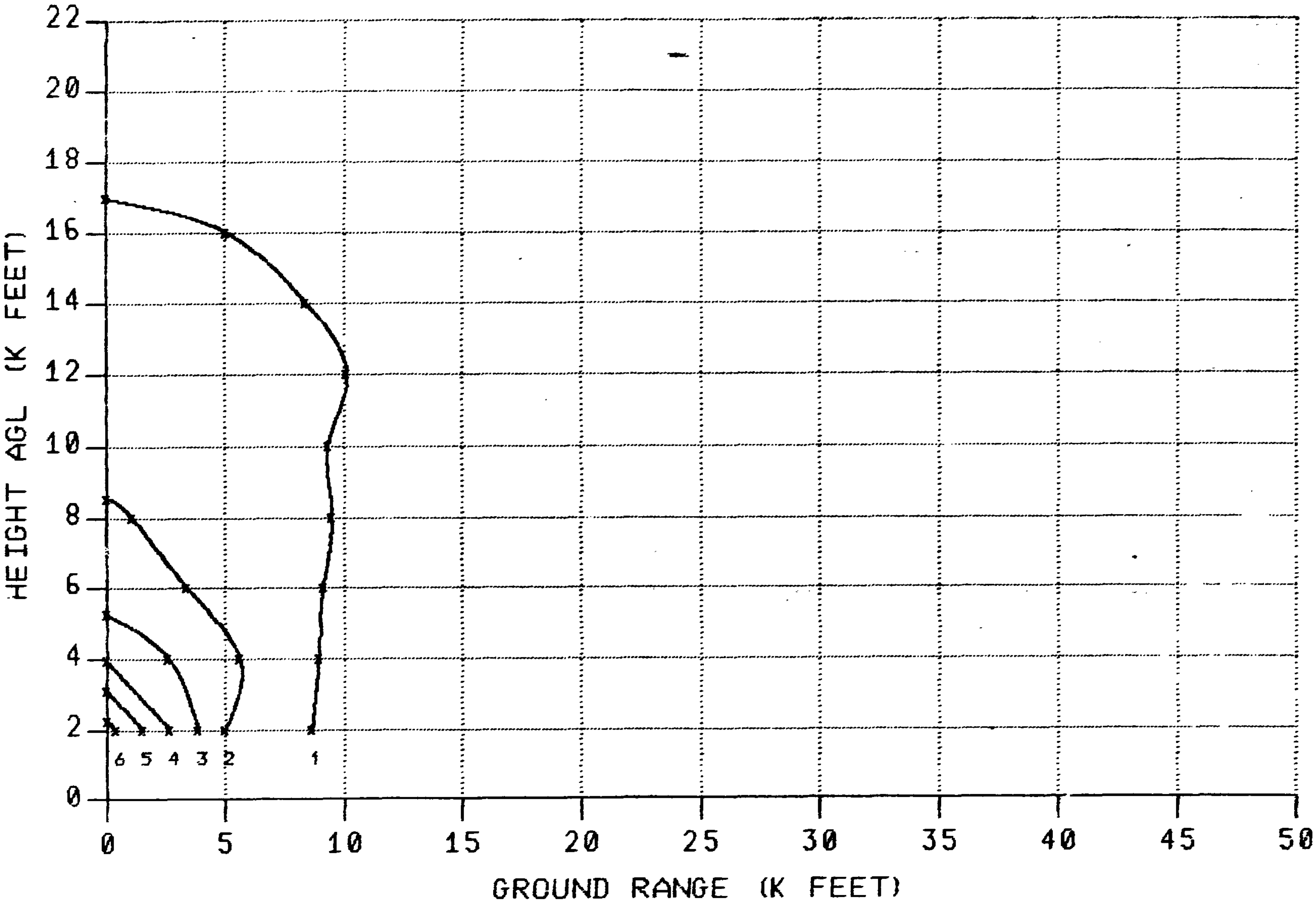
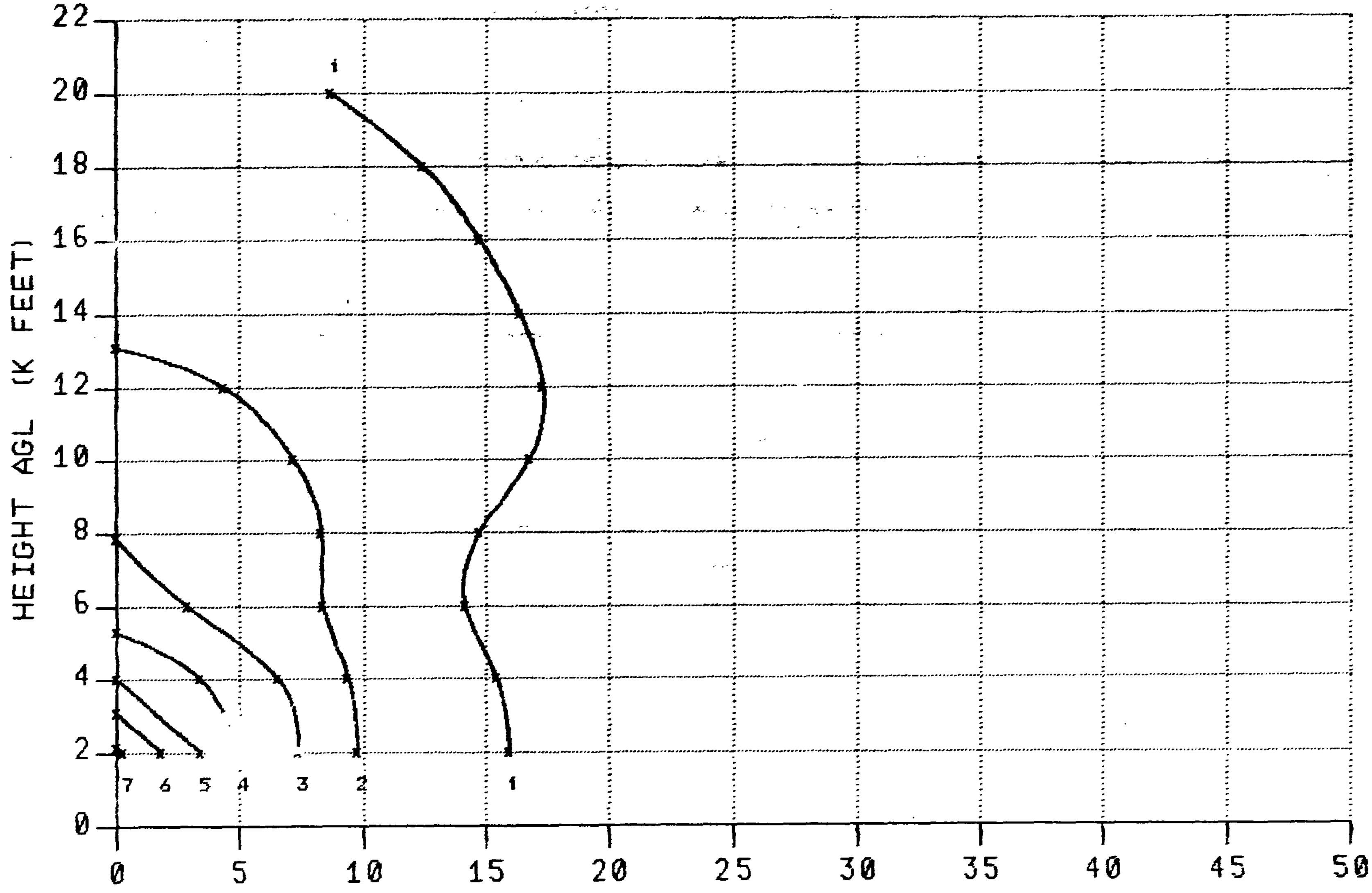


CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

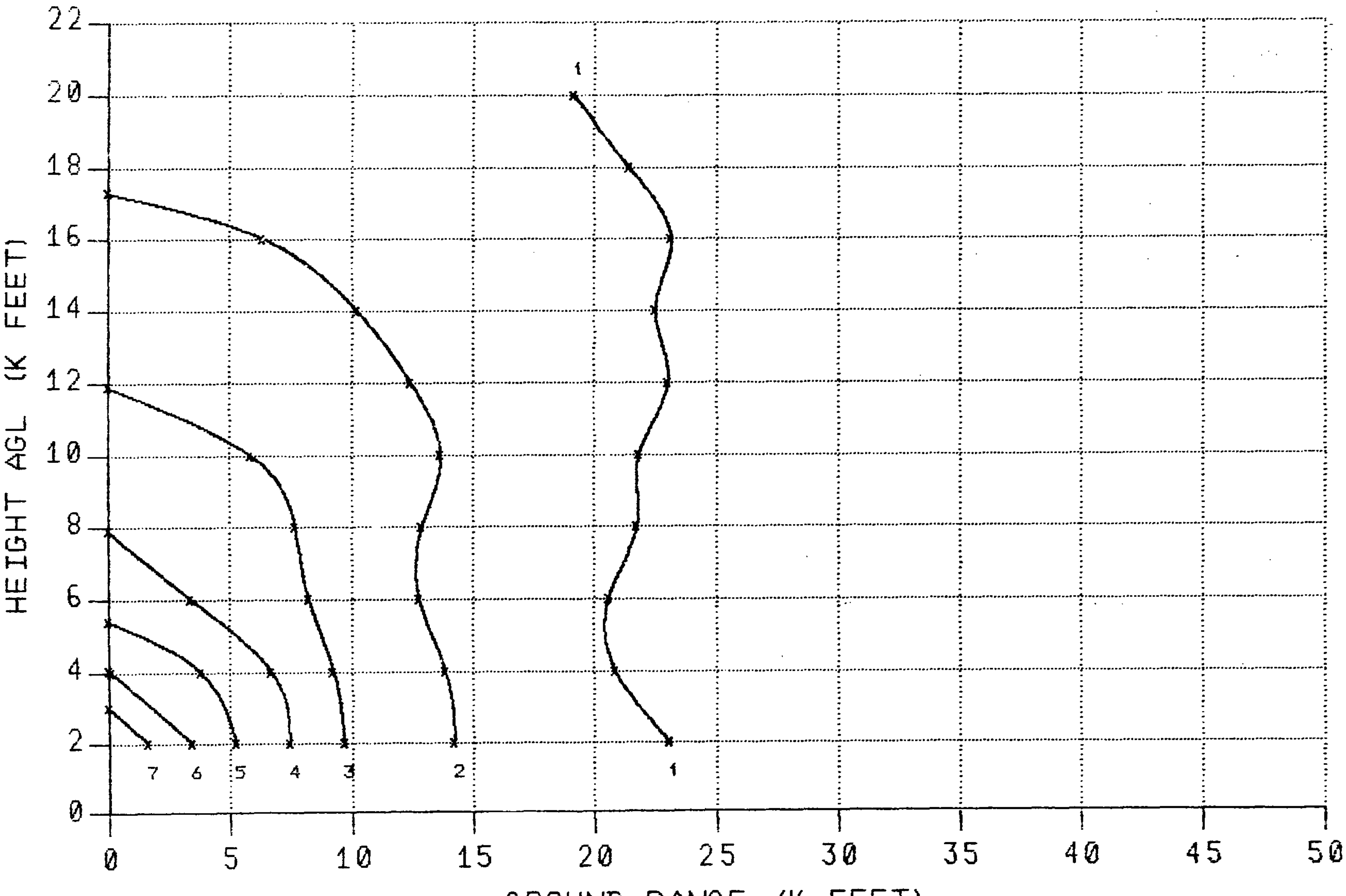
CLOUD COVER: CLR-SCT

BKGND. REFLECTANCE: 50 TO 99 PERCENT
SOLAR ELEV. ANGLE : 0 TO 10 DEGREE
SURFACE VISIBILITY: 7 MILES (11.3 KM)
MIXING LYR. DEPTH : 6000 FEET



CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

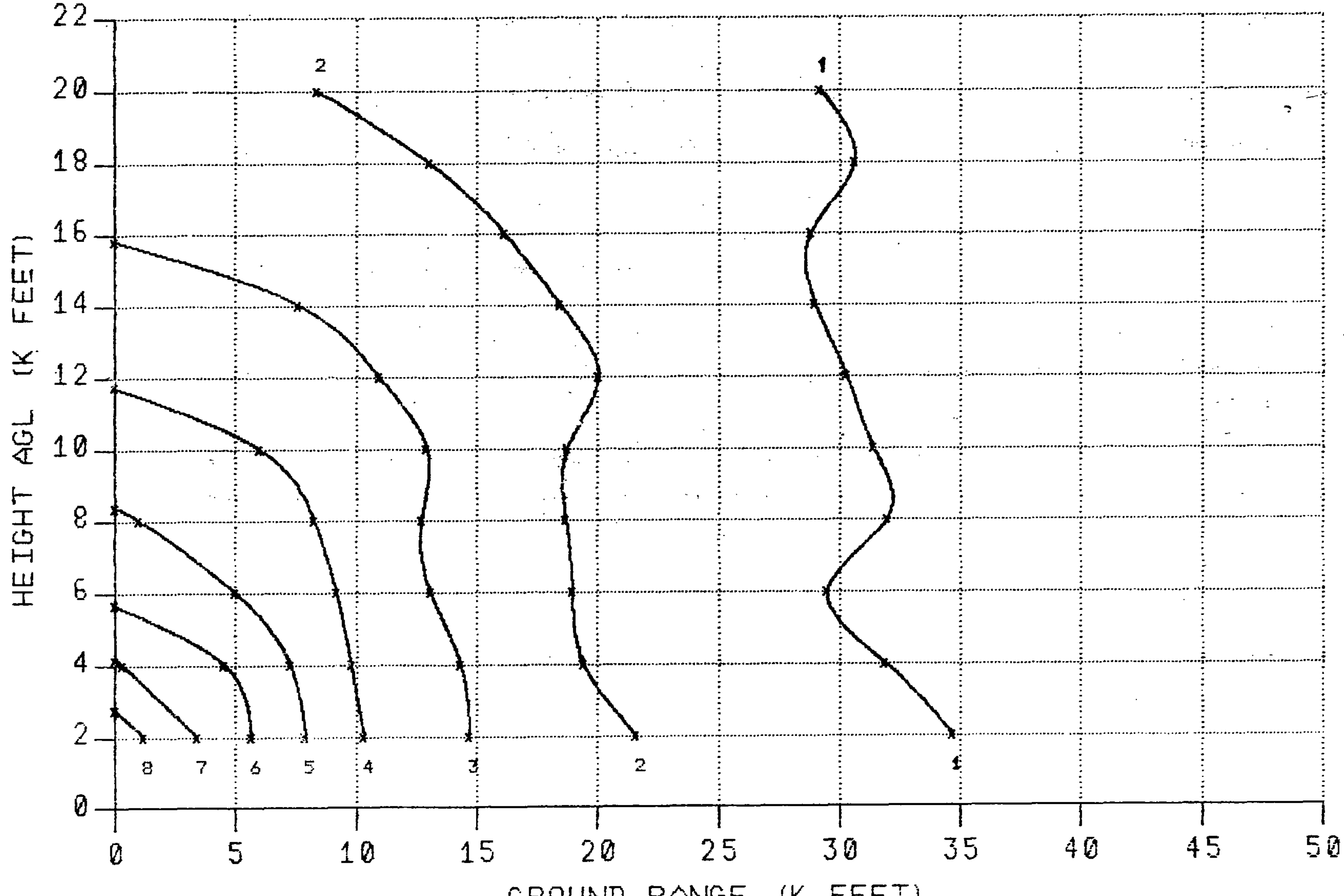
CLOUD COVER: CLR-SCT BKGND. REFLECTANCE: 30 TO 39 PERCENT
SOLAR ELEV. ANGLE : 0 TO 10 DEGREE
SURFACE VISIBILITY: 10 MILES (16.1 KM)
MIXING LYR. DEPTH : 6000 FEET



CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

CLOUD COVER: CLR-SCT

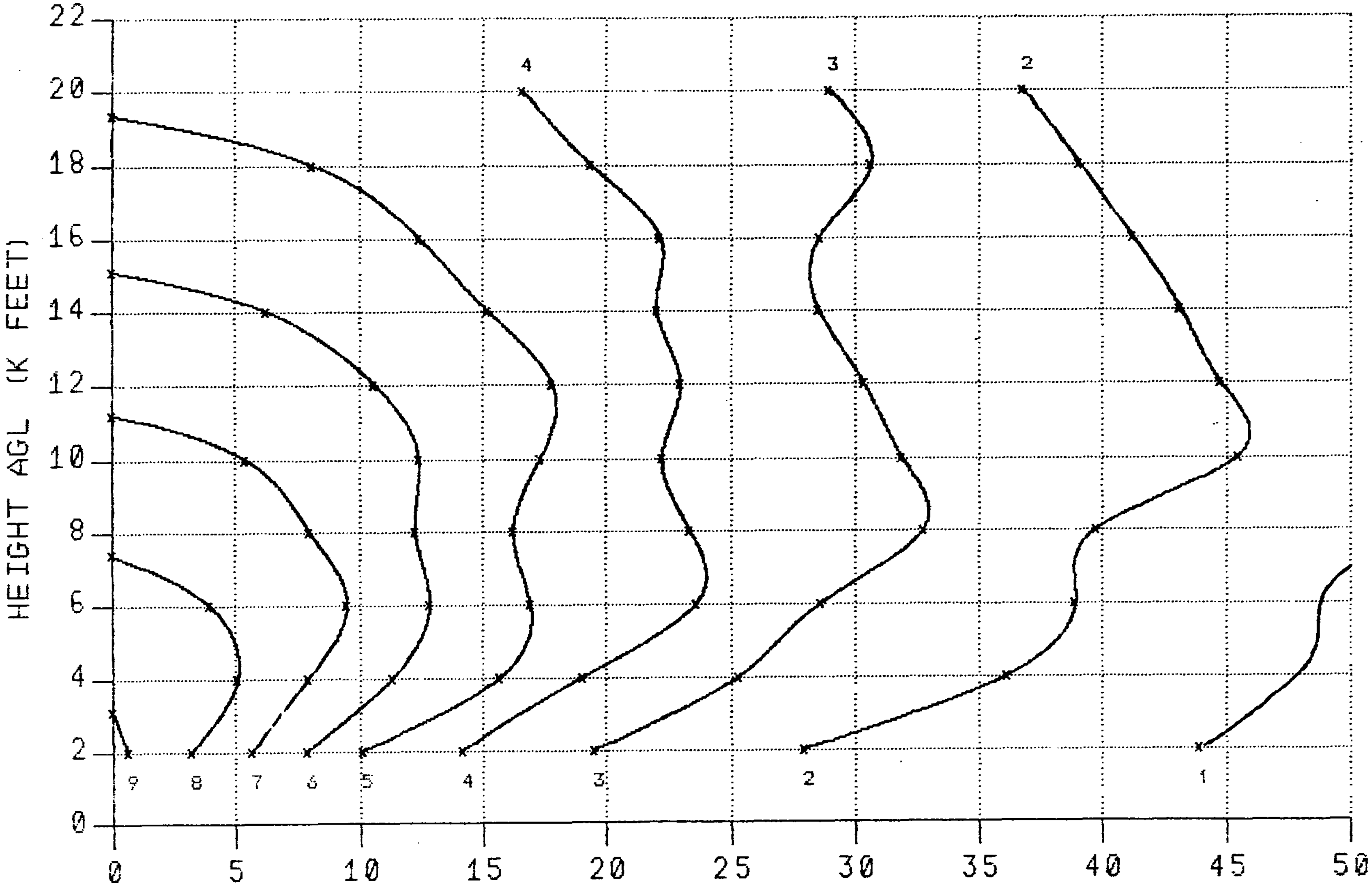
BKGND. REFLECTANCE: 50 TO 99 PERCENT
SOLAR ELEV. ANGLE : 0 TO 10 DEGREE
SURFACE VISIBILITY: 15 MILES (24.1 KM)
MIXING LYR. DEPTH : 6000 FEET



CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

CLOUD COVER: CLR-SCT

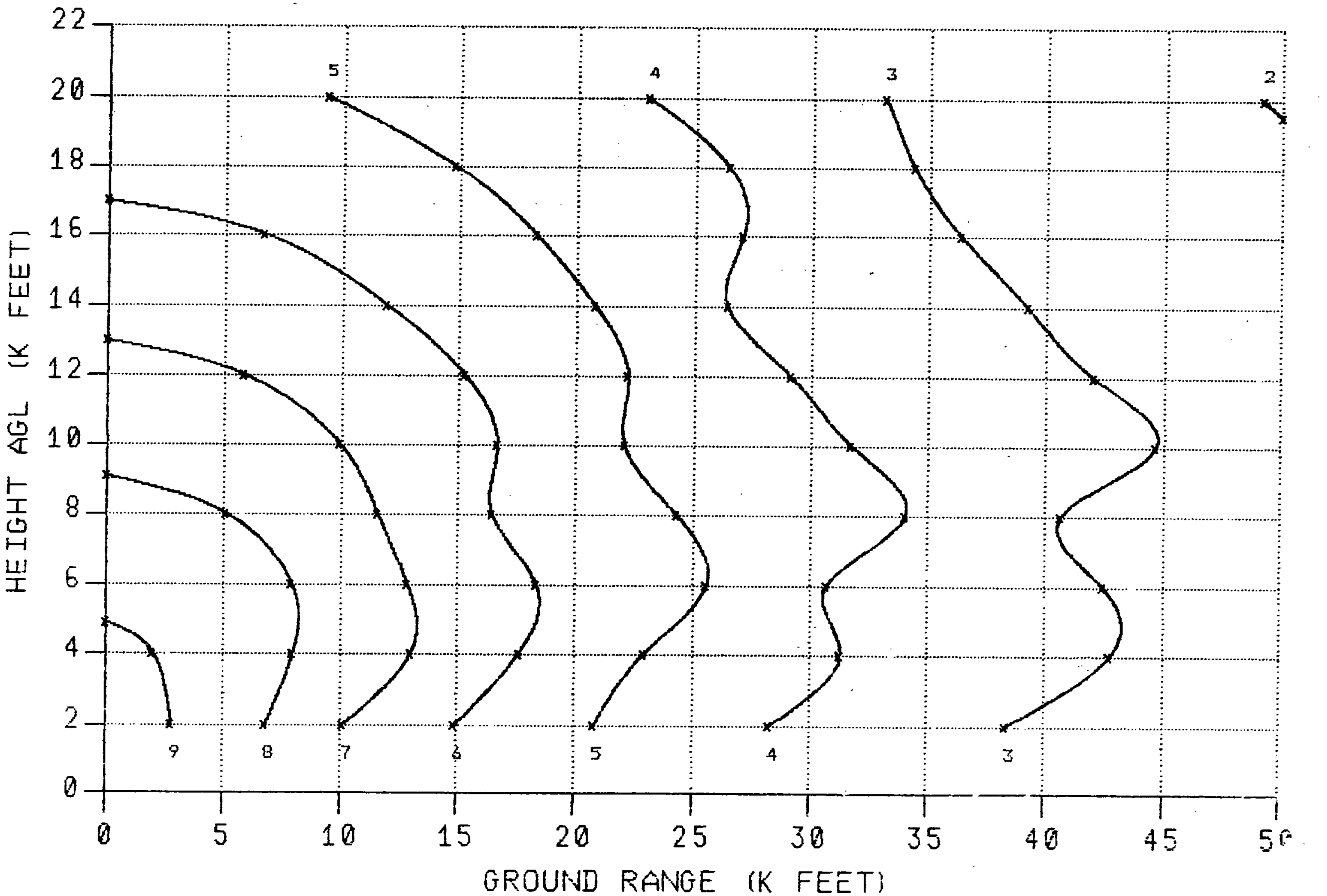
BKGND. REFLECTANCE: 50 TO 99 PERCENT
SOLAR ELEV. ANGLE : 11 TO 30 DEGREE
SURFACE VISIBILITY: 1 MILE (1.6 KM)
MIXING LYR. DEPTH : BELOW 50 FEET



GROUND RANGE (K FEET)
CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

CLOUD COVER: CLR-SCT

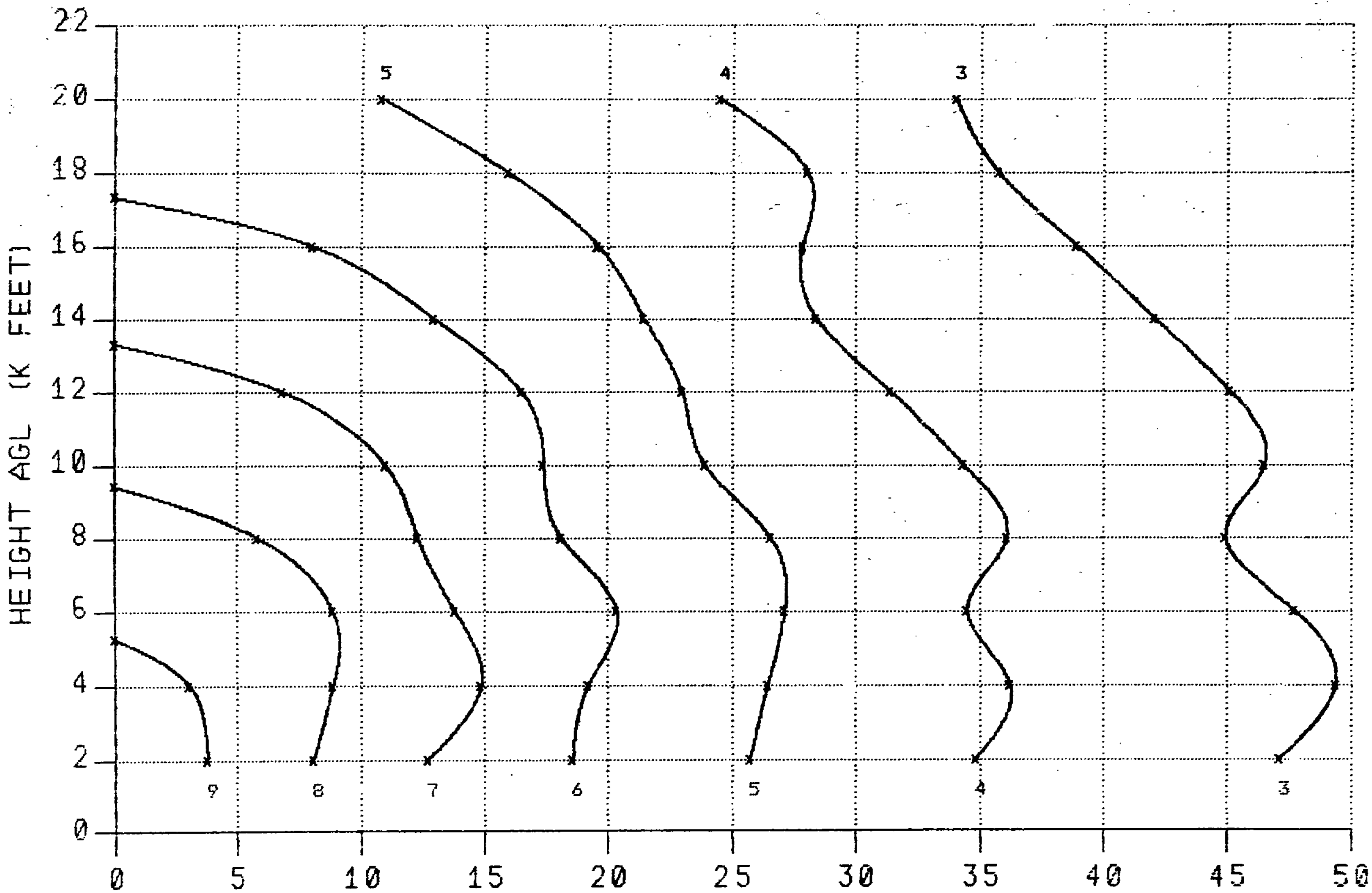
BKGND. REFLECTANCE: 50 TO 99 PERCENT
SOLAR ELEV. ANGLE : 11 TO 30 DEGREE
SURFACE VISIBILITY: 3 MILES (4.8 KM)
MIXING LYR. DEPTH : BELOW 50 FEET



CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

CLOUD COVER: CLR-SCT

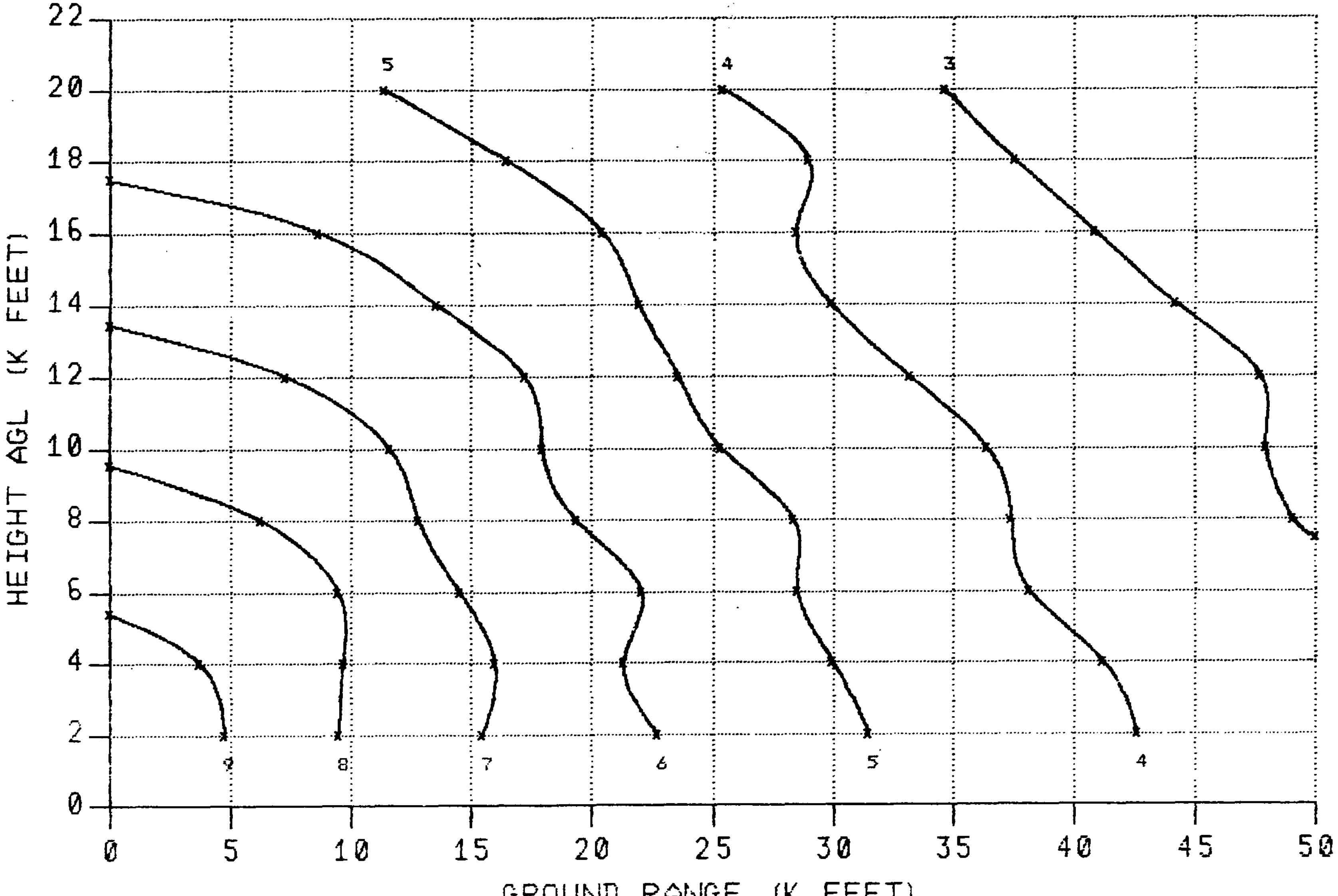
BKGND. REFLECTANCE: 50 TO 99 PERCENT
SOLAR ELEV. ANGLE : 11 TO 30 DEGREE
SURFACE VISIBILITY: 5 MILES (8.0 KM)
MIXING LYR. DEPTH : BELOW 50 FEET



GROUND RANGE (K FEET)
CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

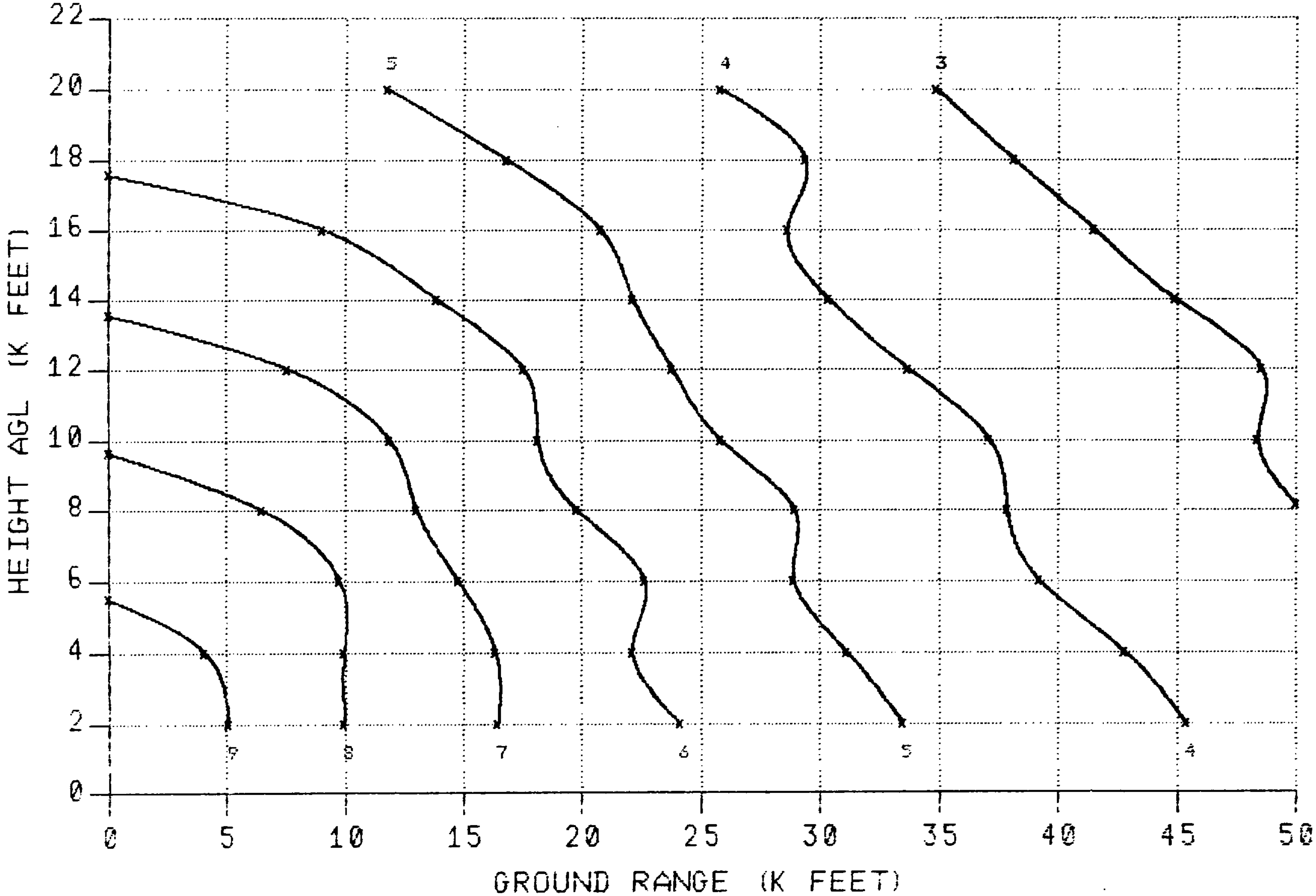
CLOUD COVER: CLR-SCT

BKGND. REFLECTANCE: 50 TO 99 PERCENT
SOLAR ELEV. ANGLE : 11 TO 30 DEGREE
SURFACE VISIBILITY: 7 MILES (11.3 KM)
MIXING LYR. DEPTH : BELOW 50 FEET



CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

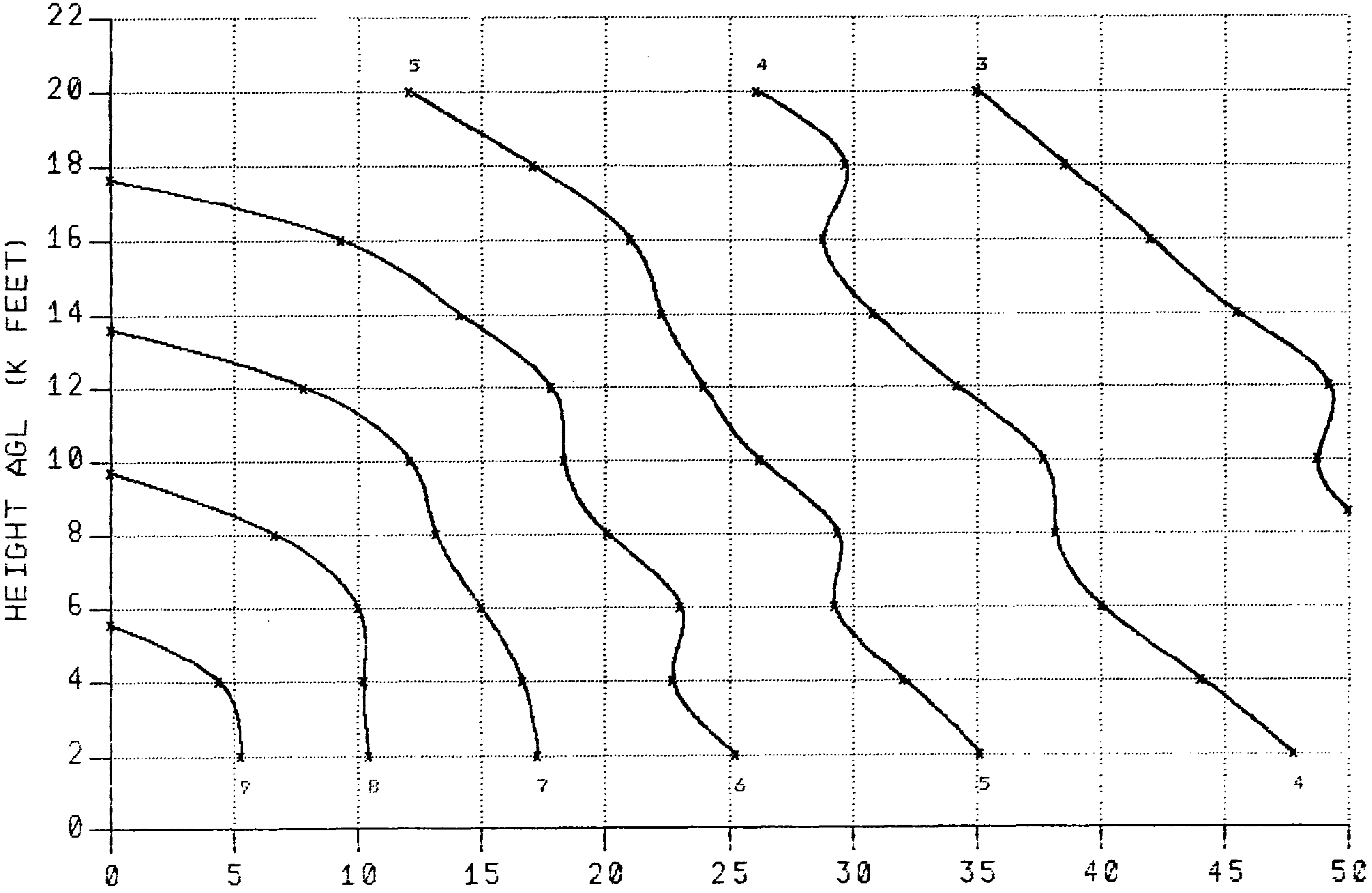
CLOUD COVER: CLR-SCT BKGND. REFLECTANCE: 50 TO 99 PERCENT
SOLAR ELEV. ANGLE : 11 TO 30 DEGREE
SURFACE VISIBILITY: 10 MILES (16.1 KM)
MIXING LYR. DEPTH : BELOW 50 FEET



CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

CLOUD COVER: CLR-SCT

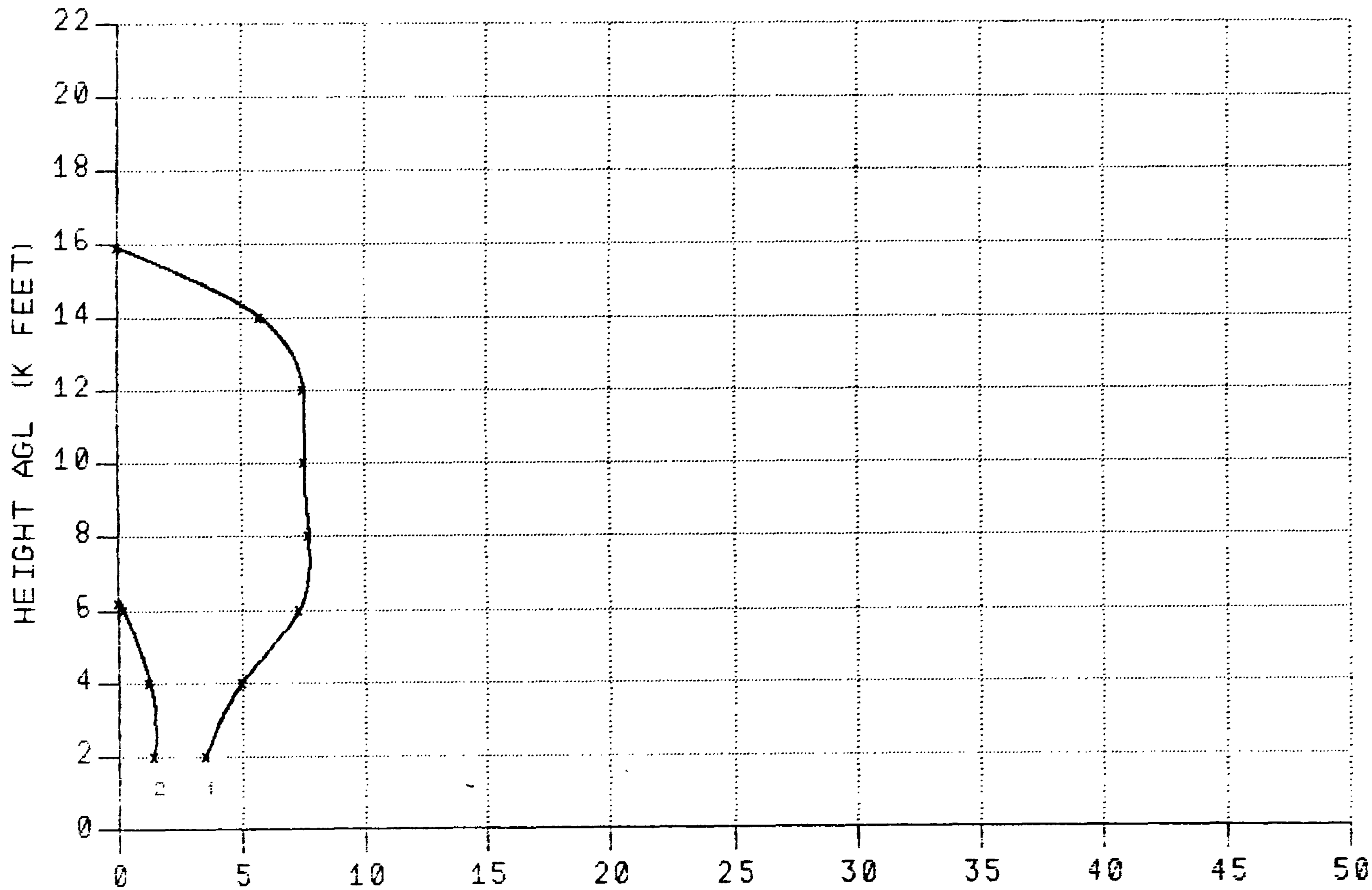
BKGND. REFLECTANCE: 50 TO 99 PERCENT
SOLAR ELEV. ANGLE : 11 TO 30 DEGREE
SURFACE VISIBILITY: 15 MILES (24.1 KM)
MIXING LYR. DEPTH : BELOW 50 FEET



CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

CLOUD COVER: CLR-SCT

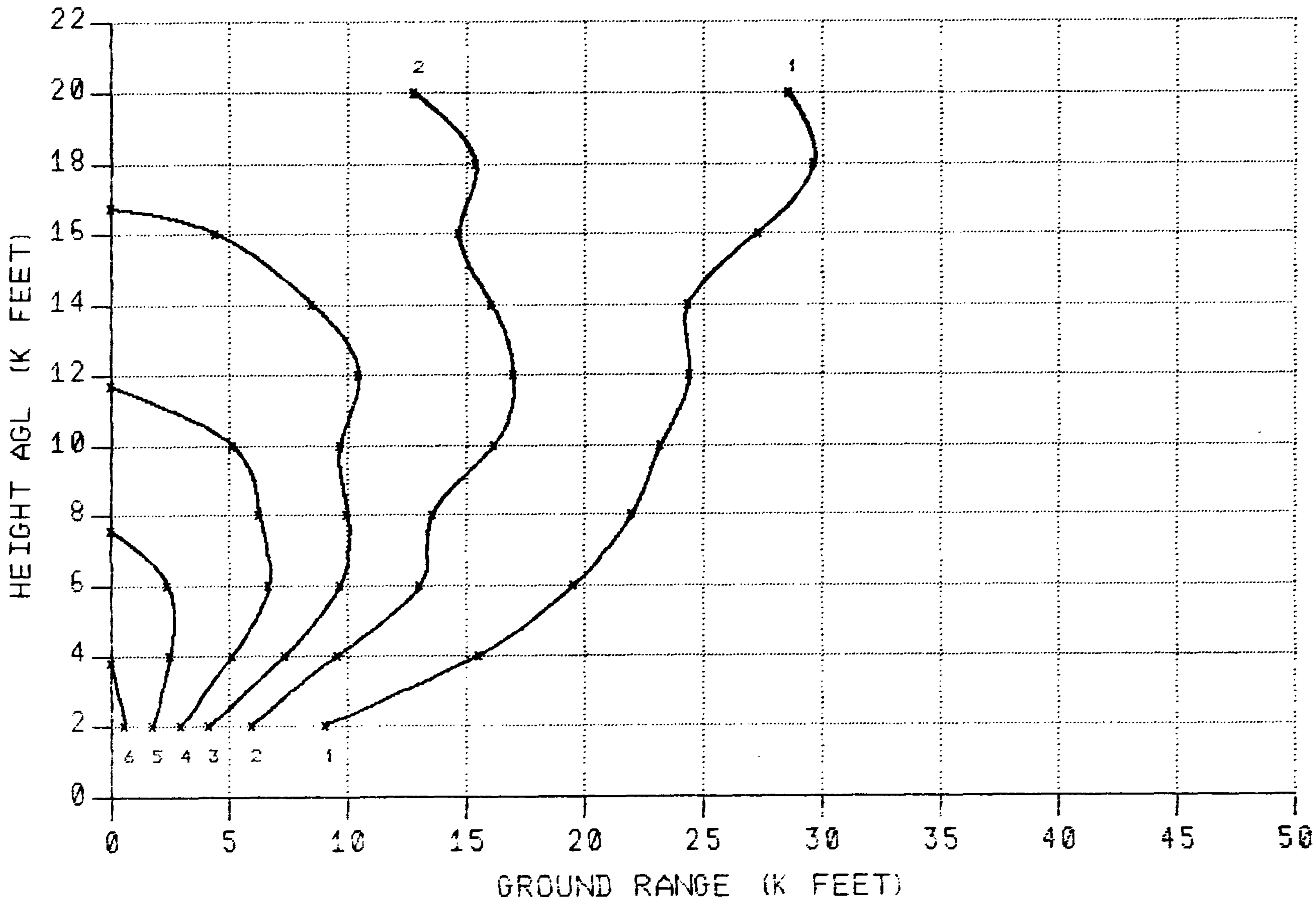
BKGND. REFLECTANCE: 50 TO 99 PERCENT
SOLAR ELEV. ANGLE : 11 TO 30 DEGREE
SURFACE VISIBILITY: 1 MILE (1.6 KM)
MIXING LYR. DEPTH : 1500 FEET



CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

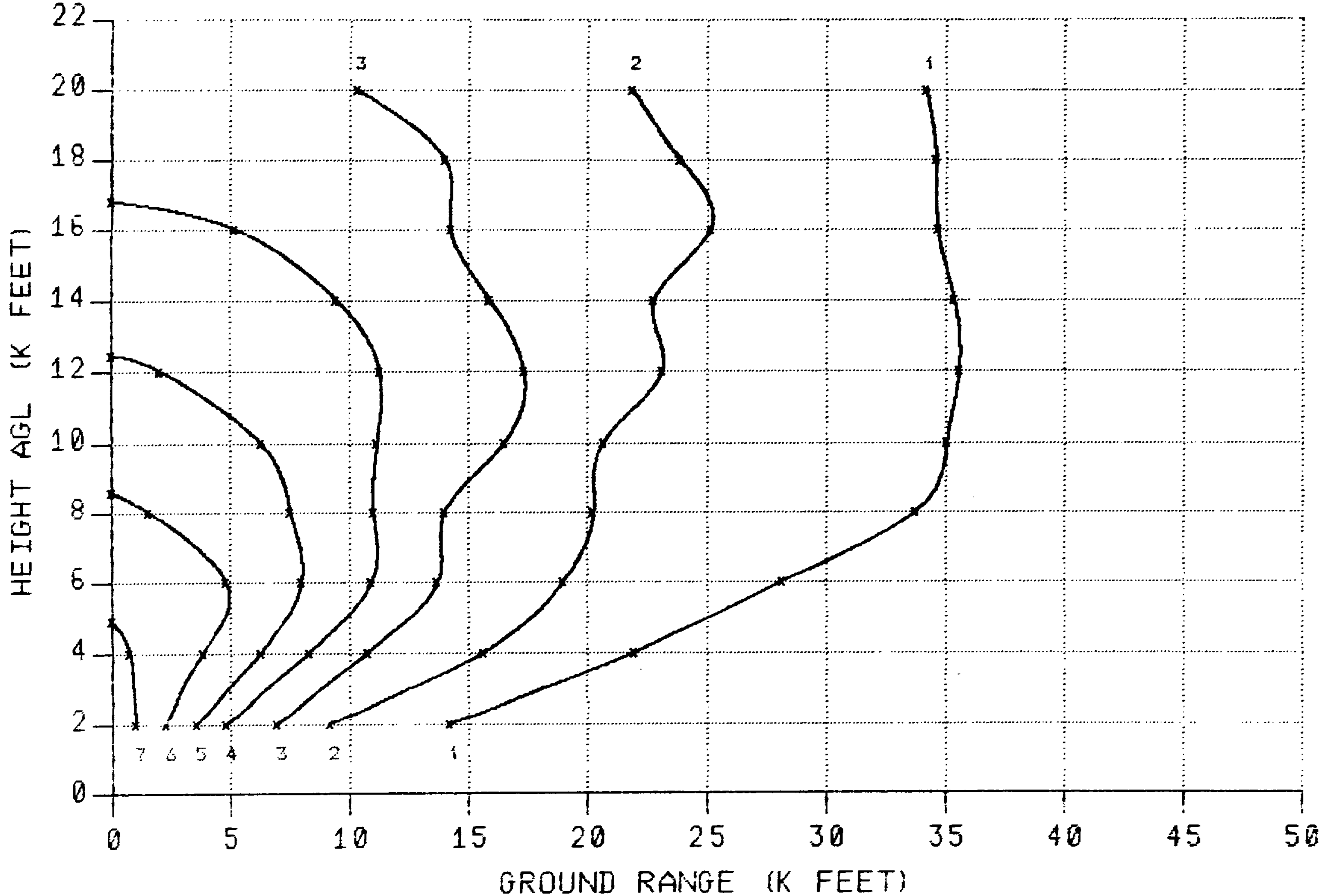
CLOUD COVER: CLR-SCT

BKGND. REFLECTANCE: 50 TO 99 PERCENT
SOLAR ELEV. ANGLE : 11 TO 30 DEGREE
SURFACE VISIBILITY: 3 MILES (4.8 KM)
MIXING LYR. DEPTH : 1500 FEET



CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

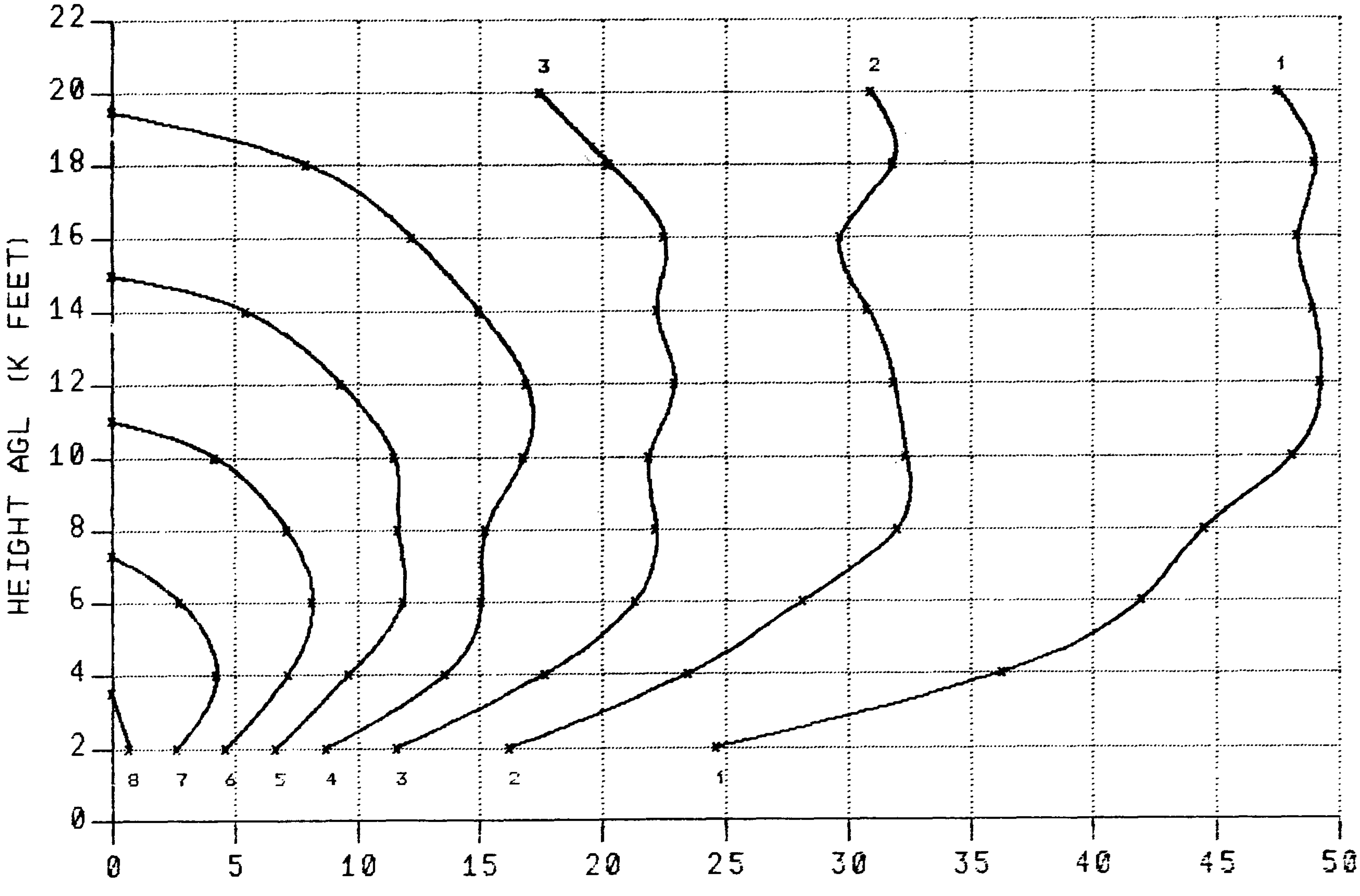
CLOUD COVER: CLR-SCT BKGND. REFLECTANCE: 50 TO 99 PERCENT
SOLAR ELEV. ANGLE : 11 TO 30 DEGREE
SURFACE VISIBILITY: 5 MILES (8.0 KM)
MIXING LYR. DEPTH : 1500 FEET



CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

CLOUD COVER: CLR-SCT

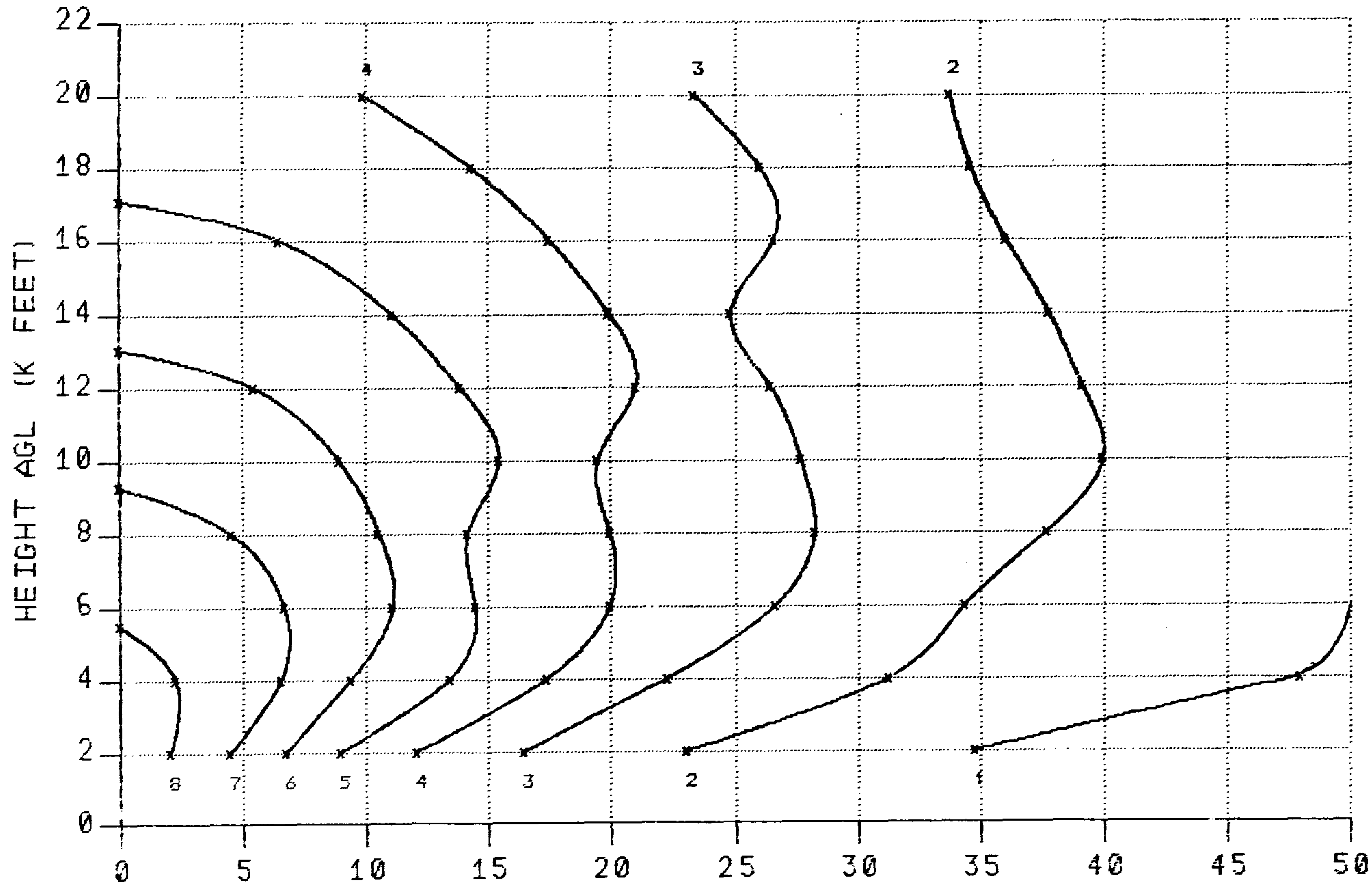
BKGND. REFLECTANCE: 50 TO 99 PERCENT
SOLAR ELEV. ANGLE : 11 TO 30 DEGREE
SURFACE VISIBILITY: 7 MILES (11.3 KM)
MIXING LYR. DEPTH : 1500 FEET



CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

CLOUD COVER: CLR-SCT

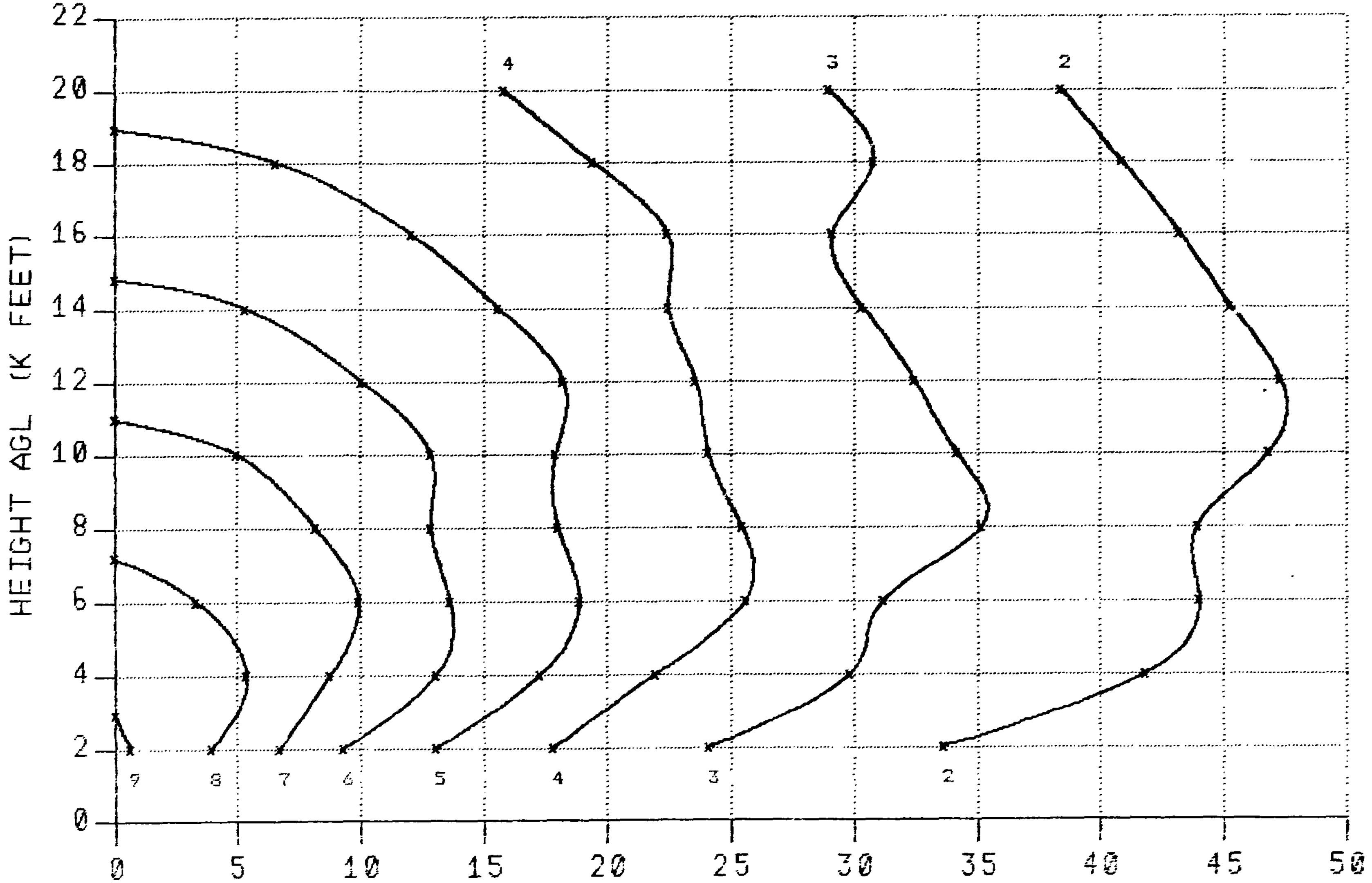
BKGND. REFLECTANCE: 50 TO 9? PERCENT
SOLAR ELEV. ANGLE : 11 TO 30 DEGREE
SURFACE VISIBILITY: 10 MILES (16.1 KM)
MIXING LYR. DEPTH : 1500 FEET



CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

CLOUD COVER: CLR-SCT

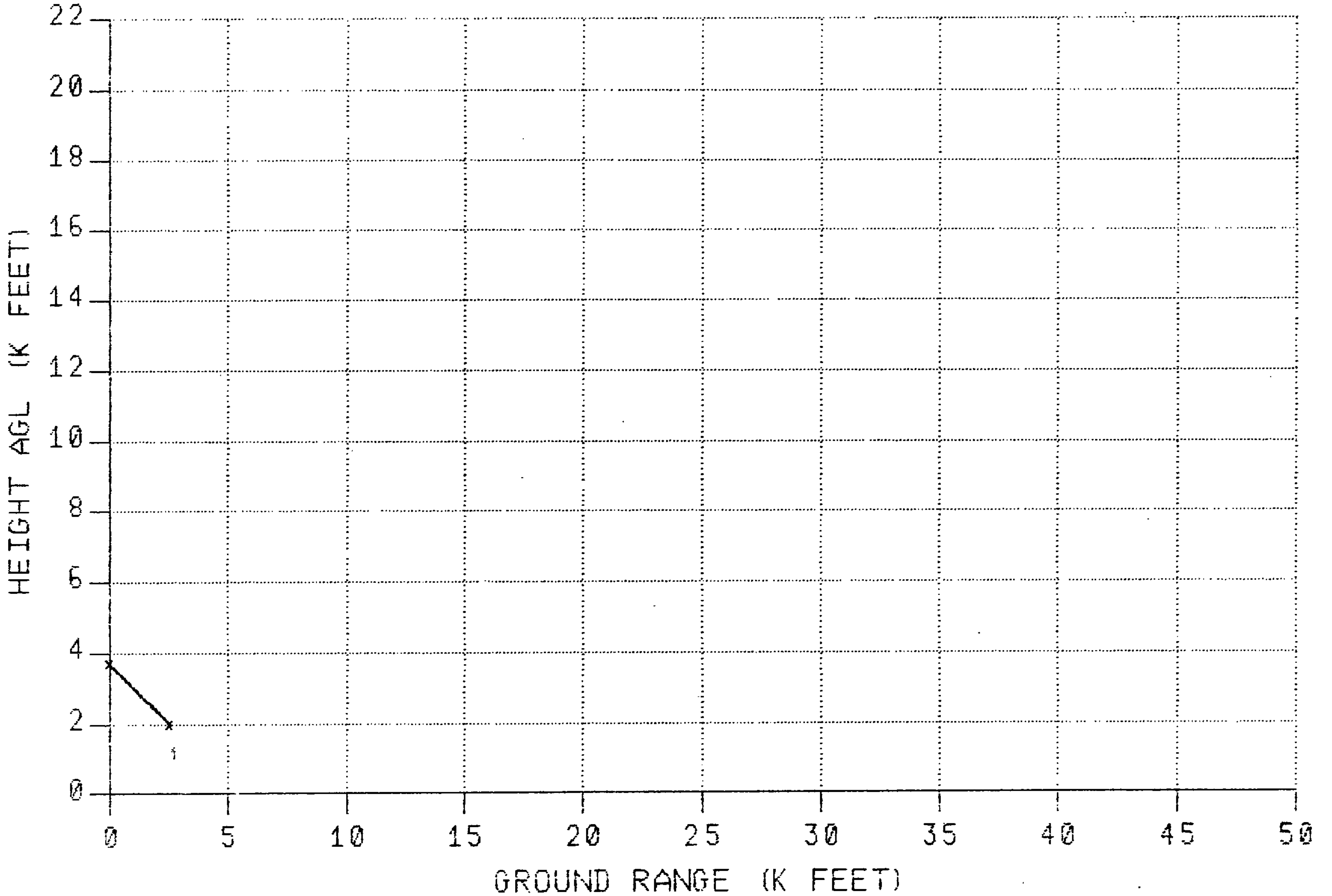
BKGND. REFLECTANCE: 50 TO 99 PERCENT
SOLAR ELEV. ANGLE : 11 TO 30 DEGREE
SURFACE VISIBILITY: 15 MILES (24.1 KM)
MIXING LYR. DEPTH : 1500 FEET



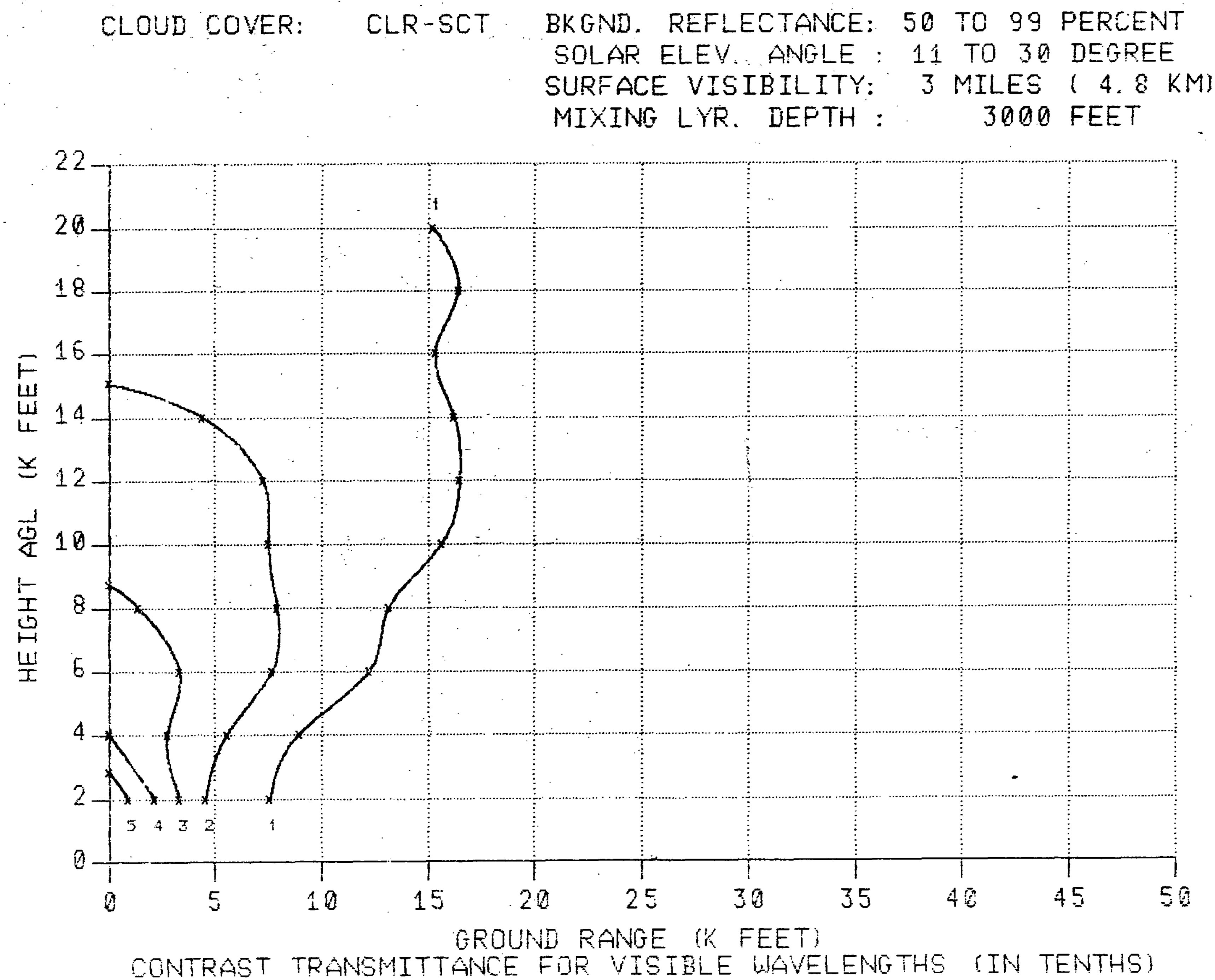
GROUND RANGE (K FEET)
CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

CLOUD COVER: CLR-SCT

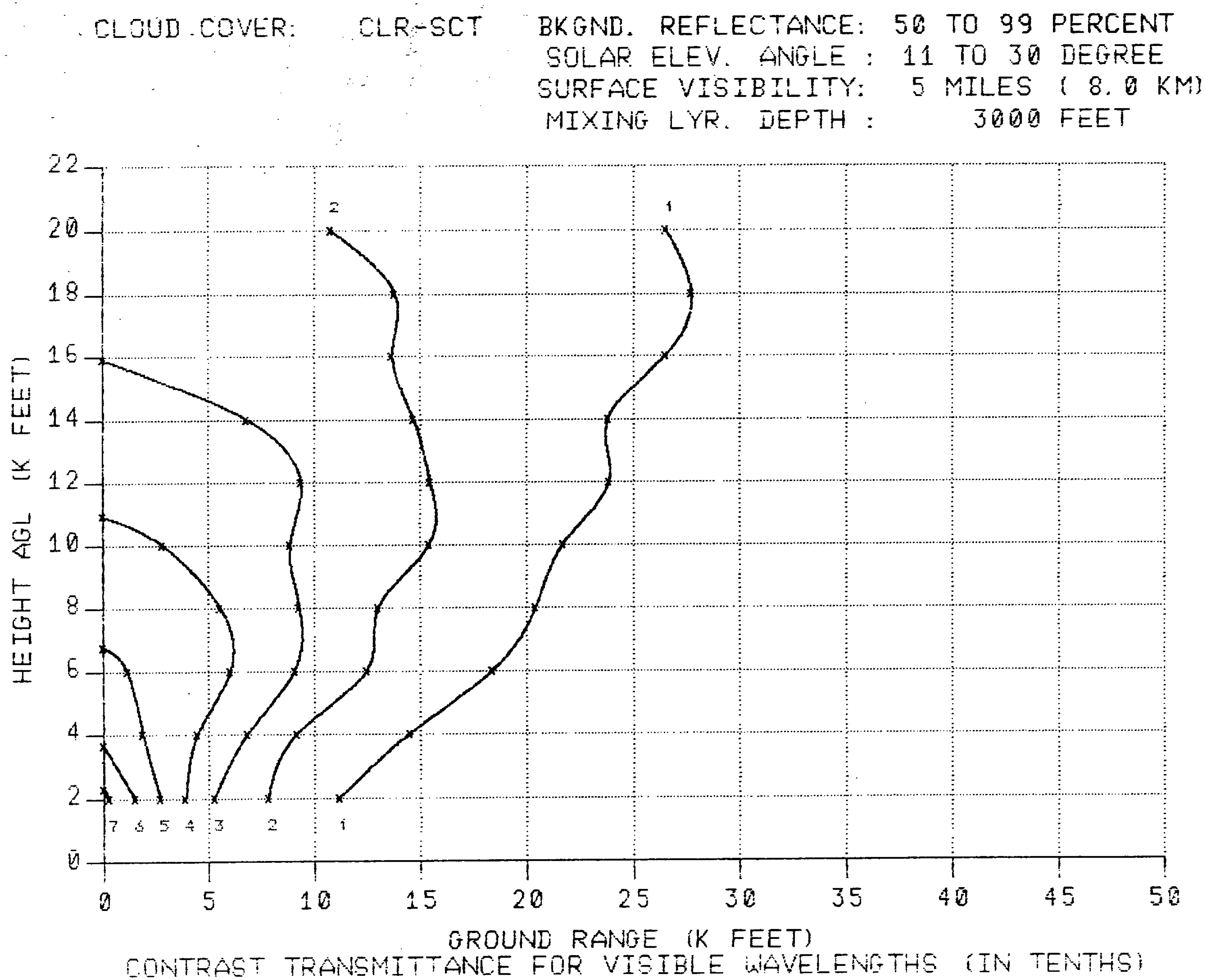
BKGND. REFLECTANCE: 50 TO 99 PERCENT
SOLAR ELEV. ANGLE : 11 TO 30 DEGREE
SURFACE VISIBILITY: 1 MILE (1.6 KM)
MIXING LYR. DEPTH : 3000 FEET



CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)



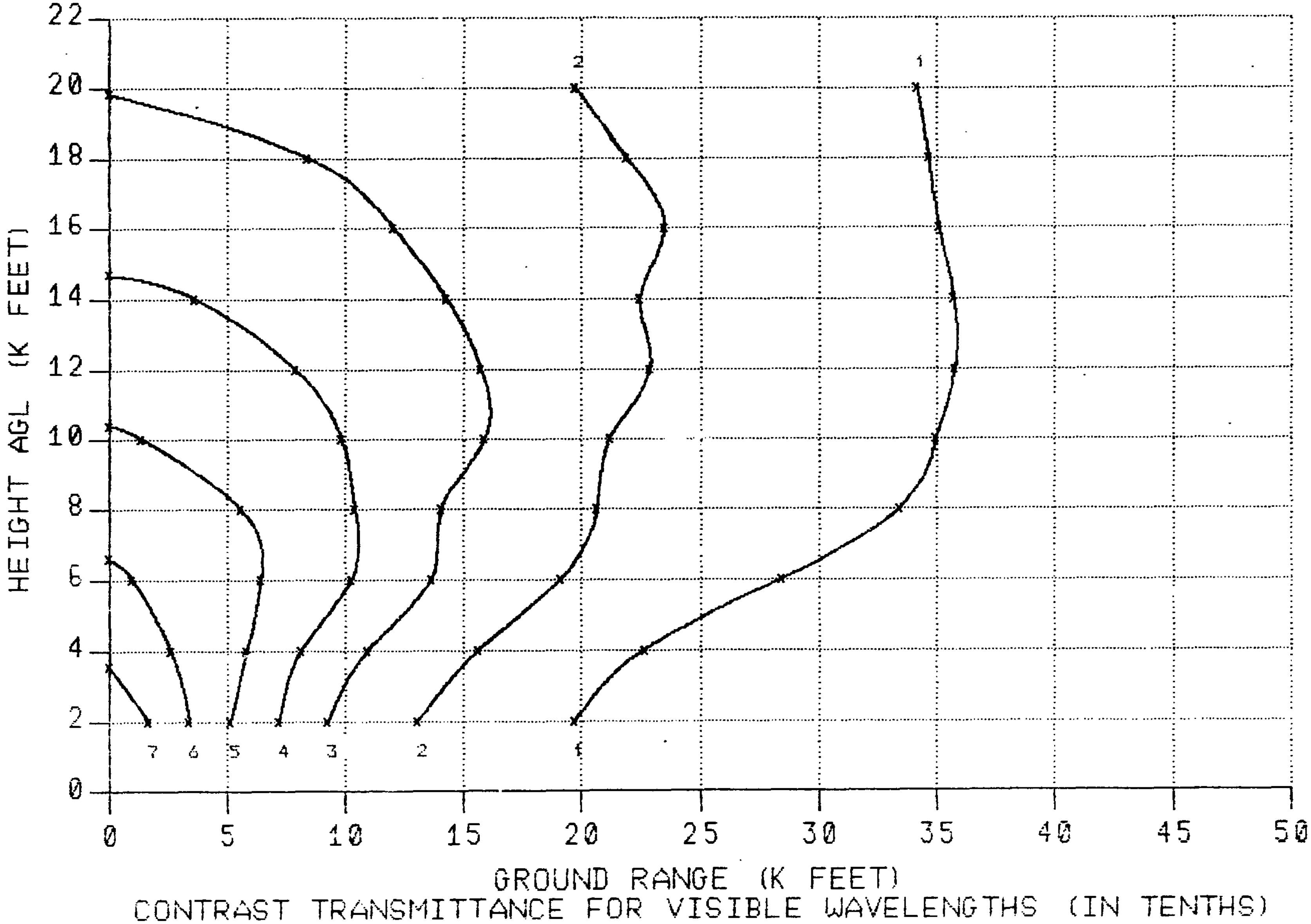
CLOUD COVER: CLR-SCT
BKGND. REFLECTANCE: 50 TO 99 PERCENT
SOLAR ELEV. ANGLE : 11 TO 30 DEGREE
SURFACE VISIBILITY: 3 MILES (4.8 KM)
MIXING LYR. DEPTH : 3000 FEET
HEIGHT AGL (K FEET)
22
20
18
16
14
12
10
8
6
4
2
0
5 4 3 2 1
1
0 5 10 15 20 25 30 35 40 45 50
GROUND RANGE (K FEET)
CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)



CLOUD COVER: CLR-SCT
BKGND. REFLECTANCE: 50 TO 99 PERCENT
SOLAR ELEV. ANGLE : 11 TO 30 DEGREE
SURFACE VISIBILITY: 5 MILES (8.0 KM)
MIXING LYR. DEPTH : 3000 FEET
HEIGHT AGL (K FEET)
22
20
18
16
14
12
10
8
6
4
2
0
1
2
7 6 5 4 3 2 1
0 5 10 15 20 25 30 35 40 45 50
GROUND RANGE (K FEET)
CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

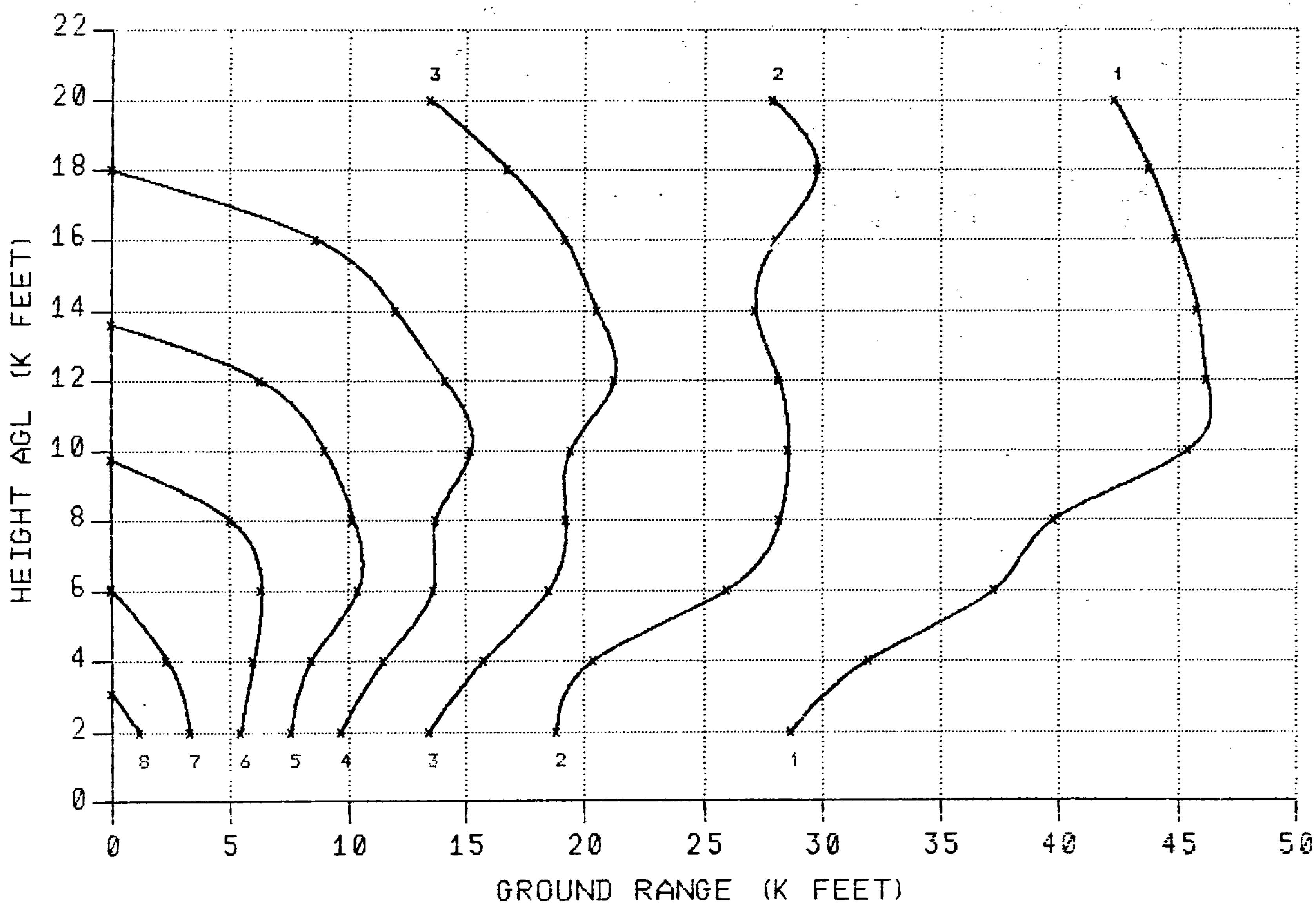
CLOUD COVER: CLR-SCT

BKGND. REFLECTANCE: 50 TO 99 PERCENT
SOLAR ELEV. ANGLE : 11 TO 30 DEGREE
SURFACE VISIBILITY: 7 MILES (11.3 KM)
MIXING LYR. DEPTH : 3000 FEET



CLOUD COVER: CLR-SCT

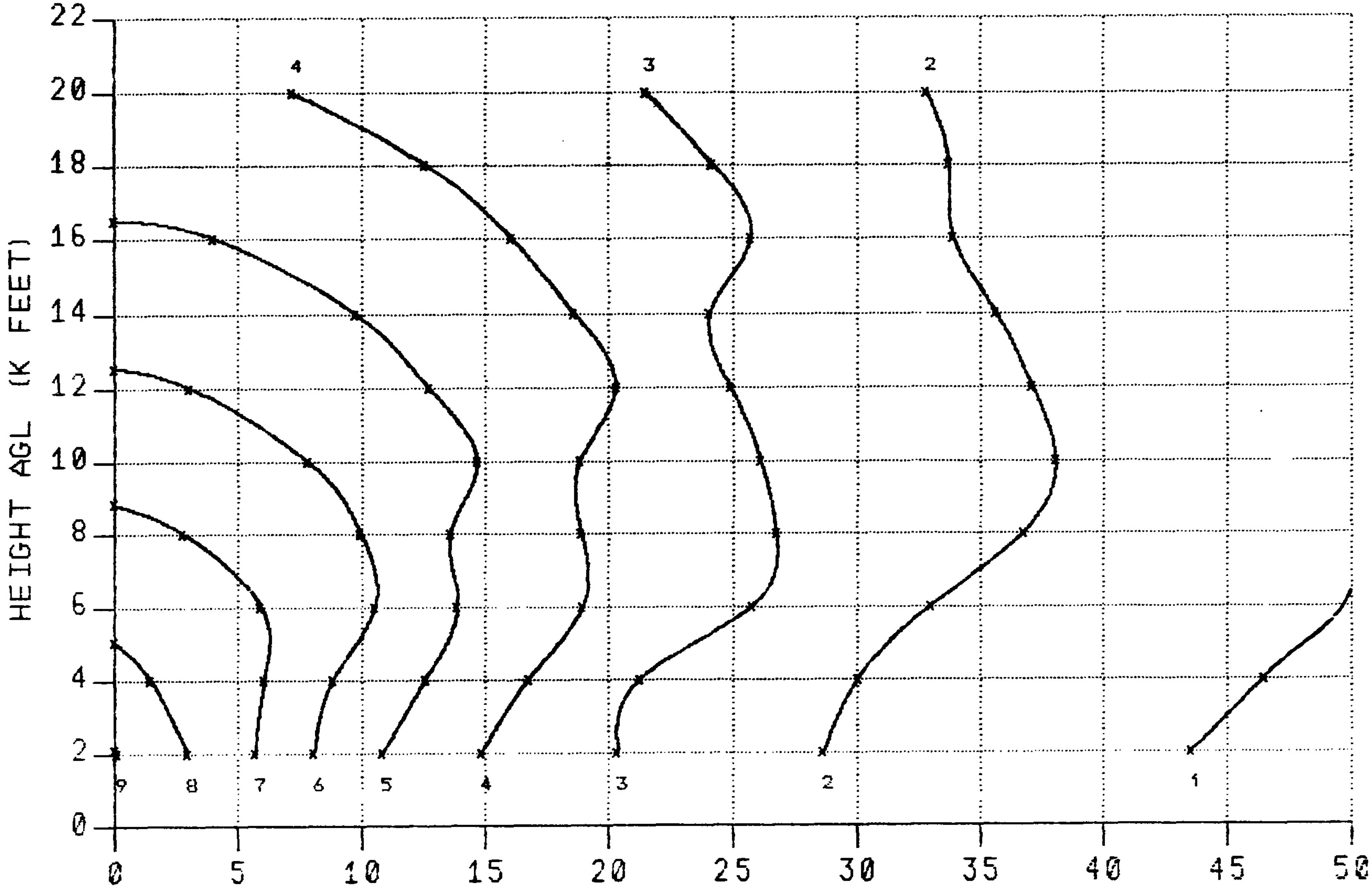
BKGND. REFLECTANCE: 50 TO 99 PERCENT
SOLAR ELEV. ANGLE : 11 TO 30 DEGREE
SURFACE VISIBILITY: 10 MILES (16.1 KM)
MIXING LYR. DEPTH : 3000 FEET



CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

CLOUD COVER: CLR-SCT

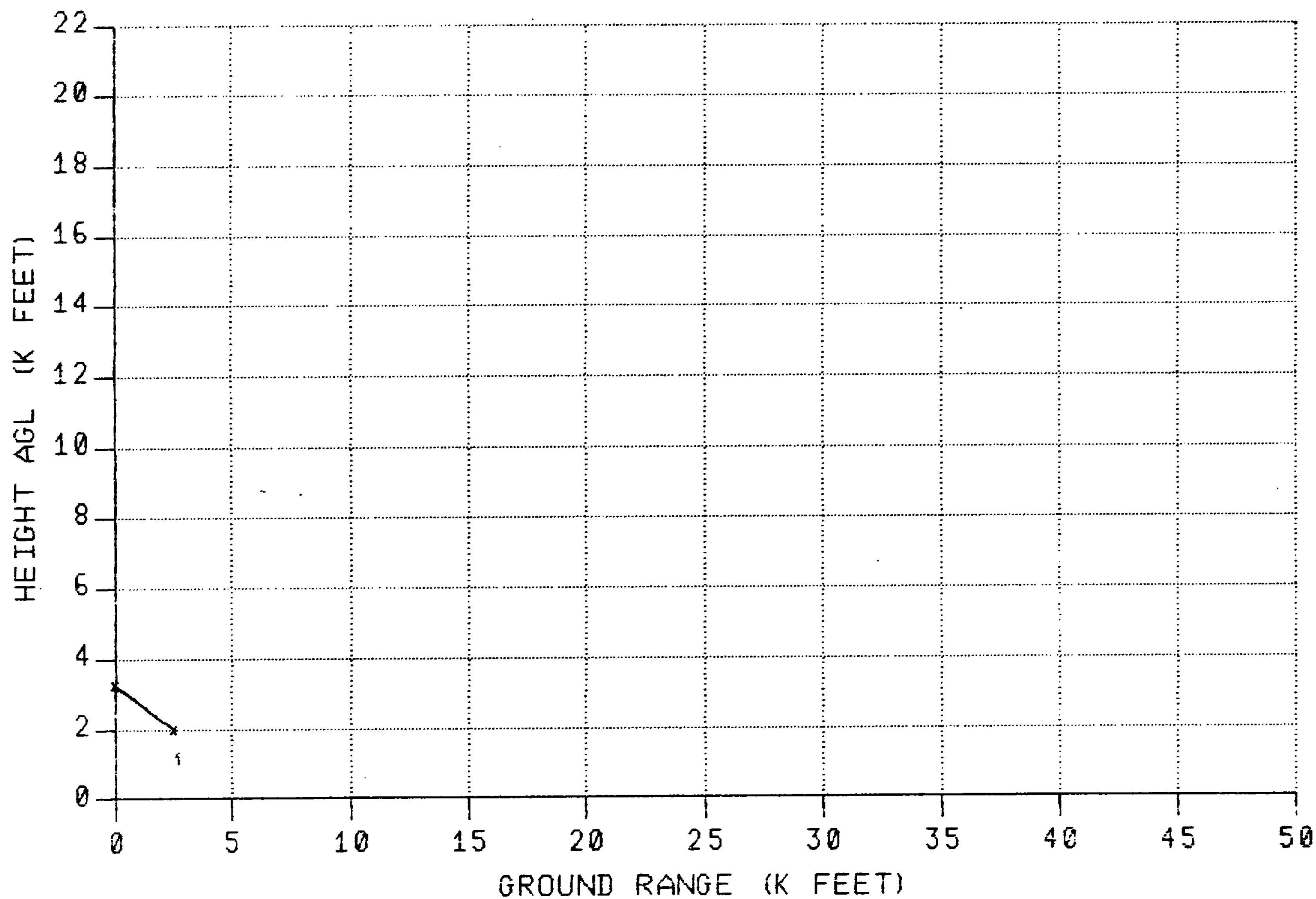
BKGND. REFLECTANCE: 50 TO 99 PERCENT
SOLAR ELEV. ANGLE : 11 TO 30 DEGREE
SURFACE VISIBILITY: 15 MILES (24.1 KM)
MIXING LYR. DEPTH : 3000 FEET



GROUND RANGE (K FEET)
(CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

CLOUD COVER: CLR-SCT

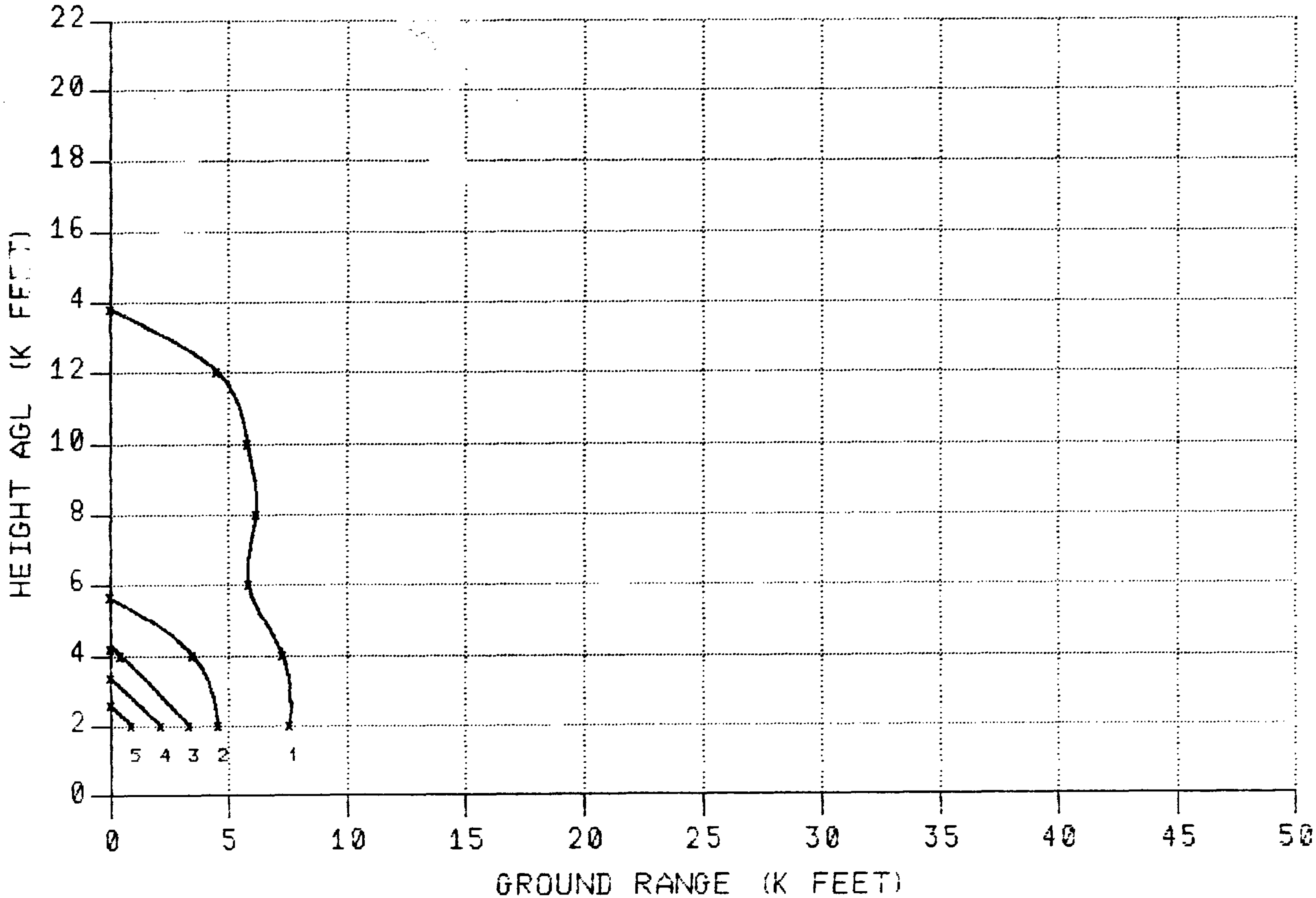
BKGND. REFLECTANCE: 50 TO 99 PERCENT
SOLAR ELEV. ANGLE : 11 TO 30 DEGREE
SURFACE VISIBILITY: 1 MILE. (1.6 KM)
MIXING LYR. DEPTH : 6000 FEET



CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

CLOUD COVER: CLR-SCT

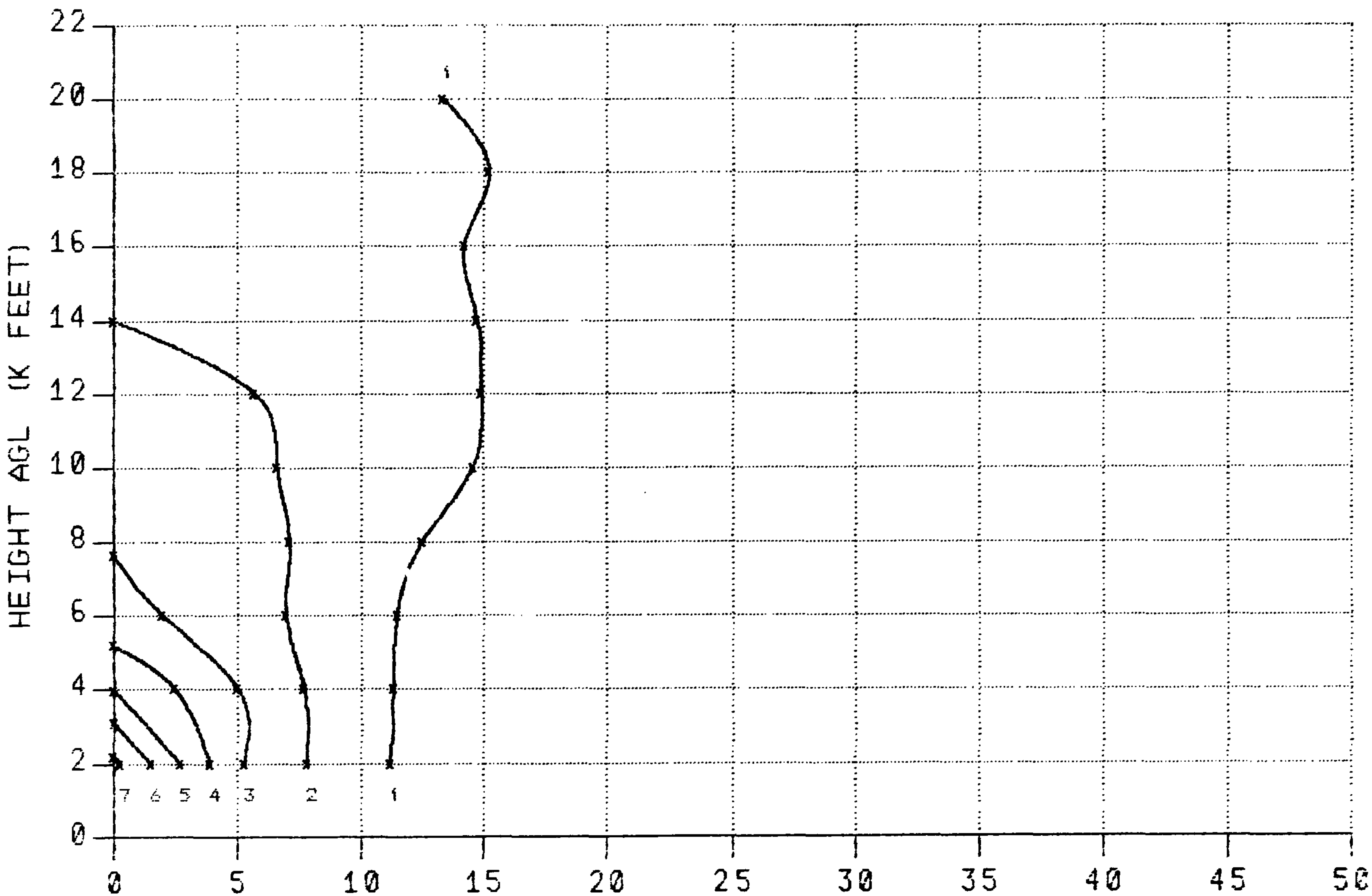
BKGND. REFLECTANCE: 50 TO 99 PERCENT
SOLAR ELEV. ANGLE : 11 TO 30 DEGREE
SURFACE VISIBILITY: 3 MILES (4.8 KM)
MIXING LYR. DEPTH : 6000 FEET



CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

CLOUD COVER: CLR-SCT

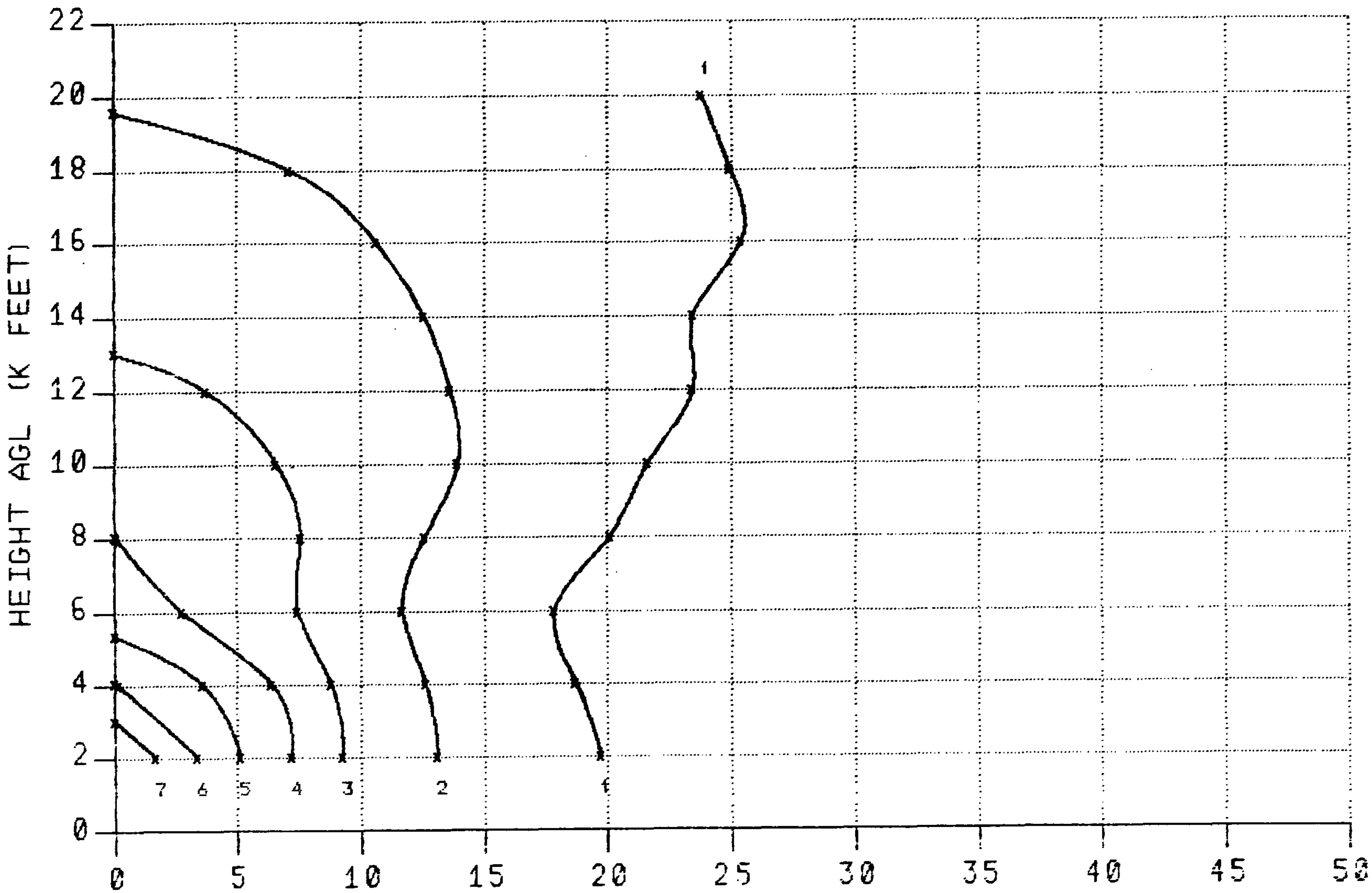
BKGND. REFLECTANCE: 50 TO 99 PERCENT
SOLAR ELEV. ANGLE : 11 TO 30 DEGREE
SURFACE VISIBILITY: 5 MILES (8.0 KM)
MIXING LYR. DEPTH : 6000 FEET



CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

CLOUD COVER: CLR-SCT

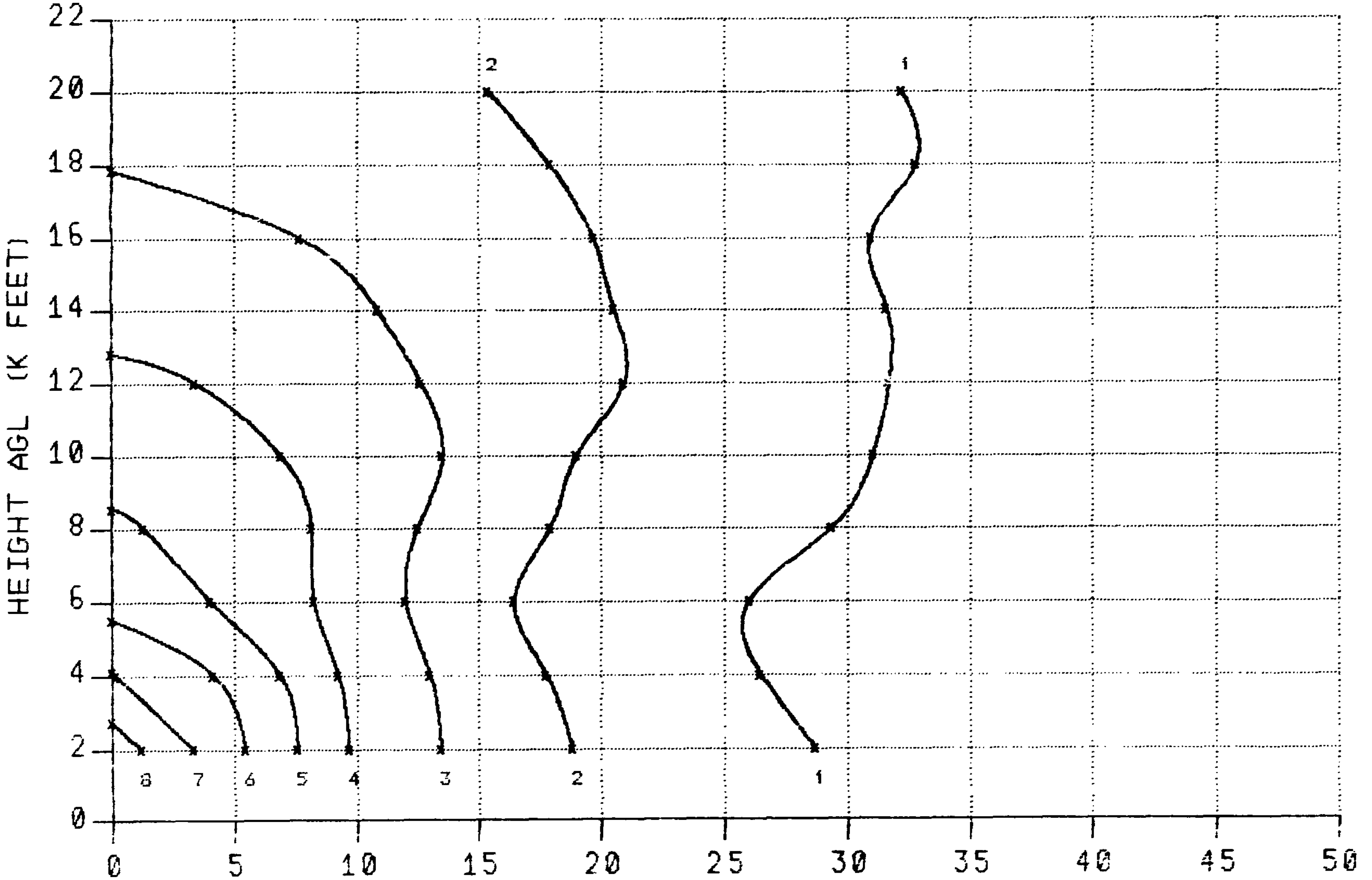
BKGND. REFLECTANCE: 50 TO 99 PERCENT
SOLAR ELEV. ANGLE : 11 TO 30 DEGREE
SURFACE VISIBILITY: 7 MILES (11.3 KM)
MIXING LYR. DEPTH : 6000 FEET



CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

CLOUD COVER: CLR-SCT

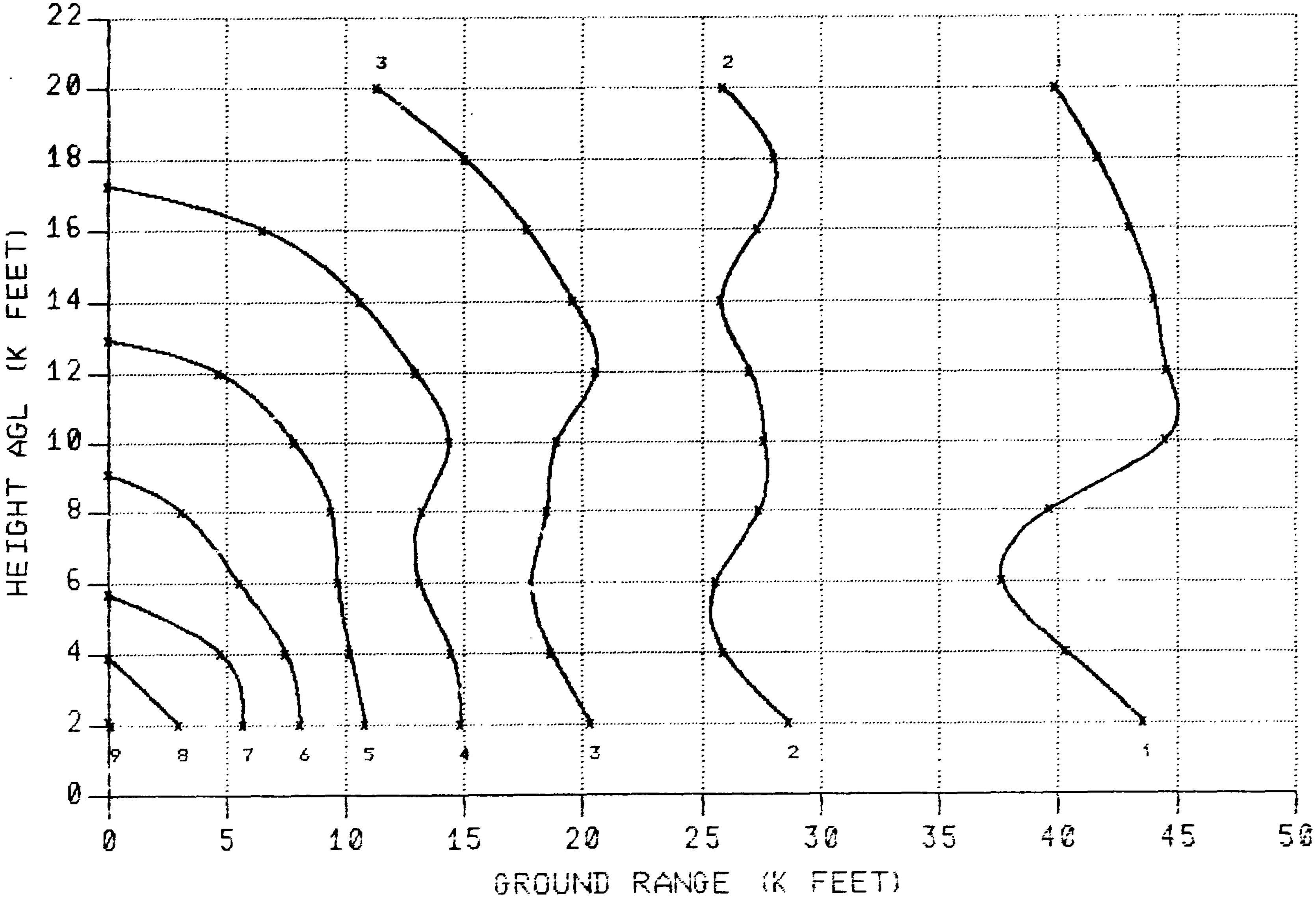
BKGND. REFLECTANCE: 50 TO 99 PERCENT
SOLAR ELEV. ANGLE : 11 TO 30 DEGREE
SURFACE VISIBILITY: 10 MILES (16.1 KM)
MIXING LYR. DEPTH : 6000 FEET



GROUND RANGE (K FEET)
CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

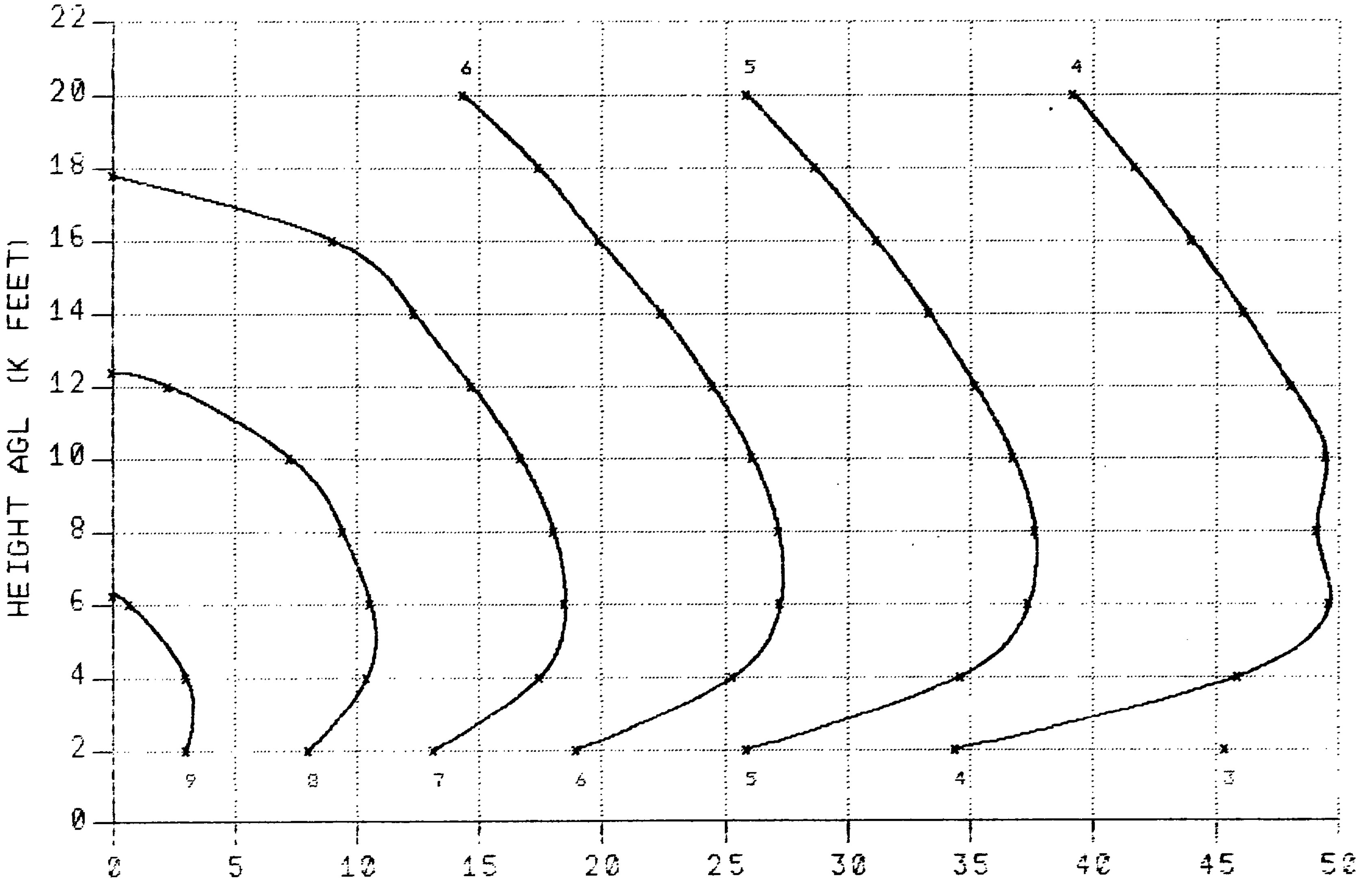
CLOUD COVER: CLR-SCT

BKGND. REFLECTANCE: 50 TO 99 PERCENT
SOLAR ELEV. ANGLE : 11 TO 30 DEGREE
SURFACE VISIBILITY: 15 MILES (24.1 KM)
MIXING LYR. DEPTH : 6000 FEET



CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

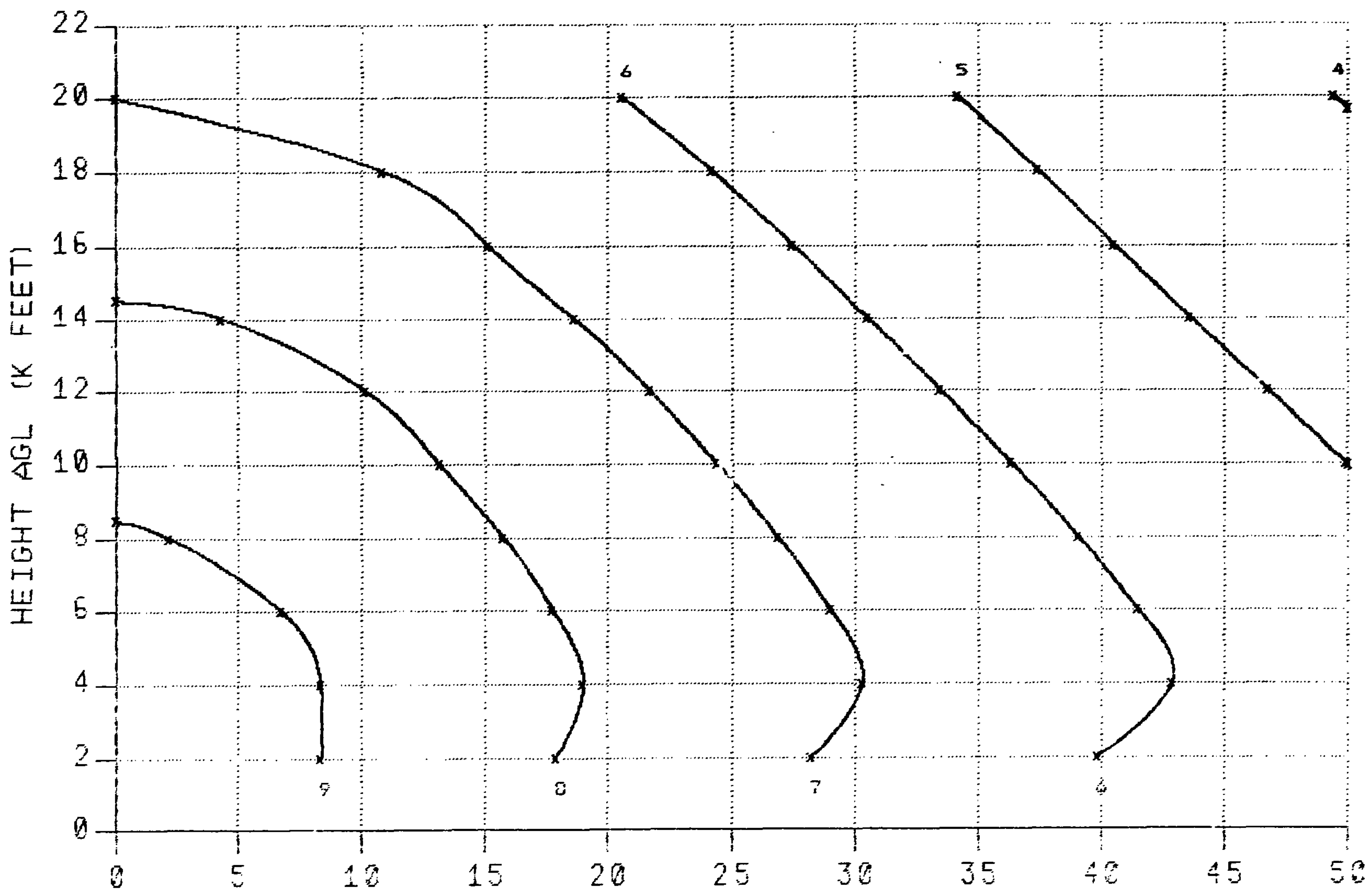
CLOUD COVER: CLR-SCT BKGND. REFLECTANCE: 50 TO 99 PERCENT
SOLAR ELEV. ANGLE : 31 TO 55 DEGREE
SURFACE VISIBILITY: 1 MILE (1.6 KM)
MIXING LYR. DEPTH : BELOW 50 FEET



GROUND RANGE (K FEET)
CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

CLOUD COVER: CLR-SCT

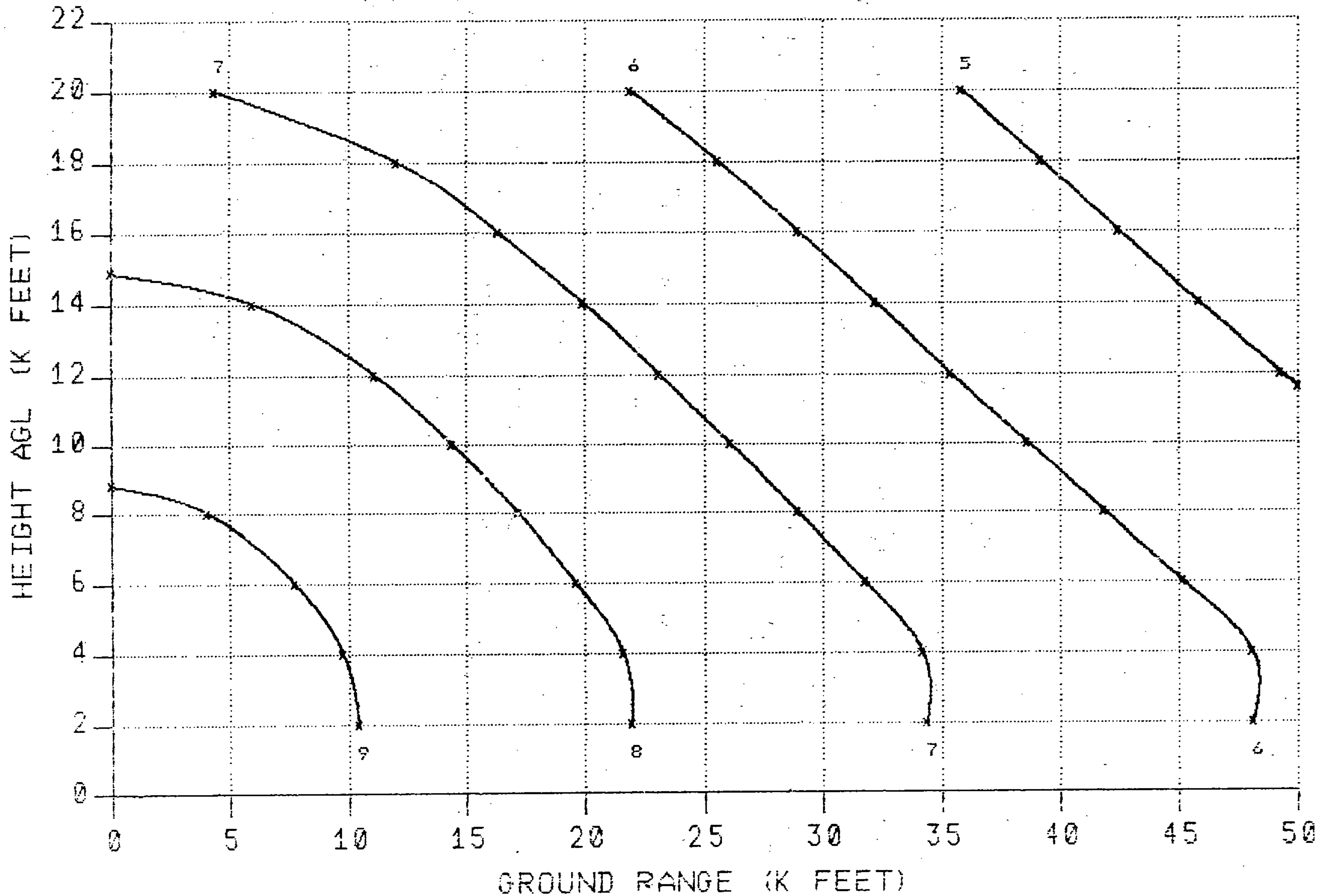
BKGND. REFLECTANCE: 50 TO 99 PERCENT
SOLAR ELEV. ANGLE : 31 TO 55 DEGREE
SURFACE VISIBILITY: 3 MILES (4.8 KM)
MIXING LYR. DEPTH : BELOW 50 FEET



GROUND RANGE (K FEET)
CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

CLOUD COVER: CLR-SCT

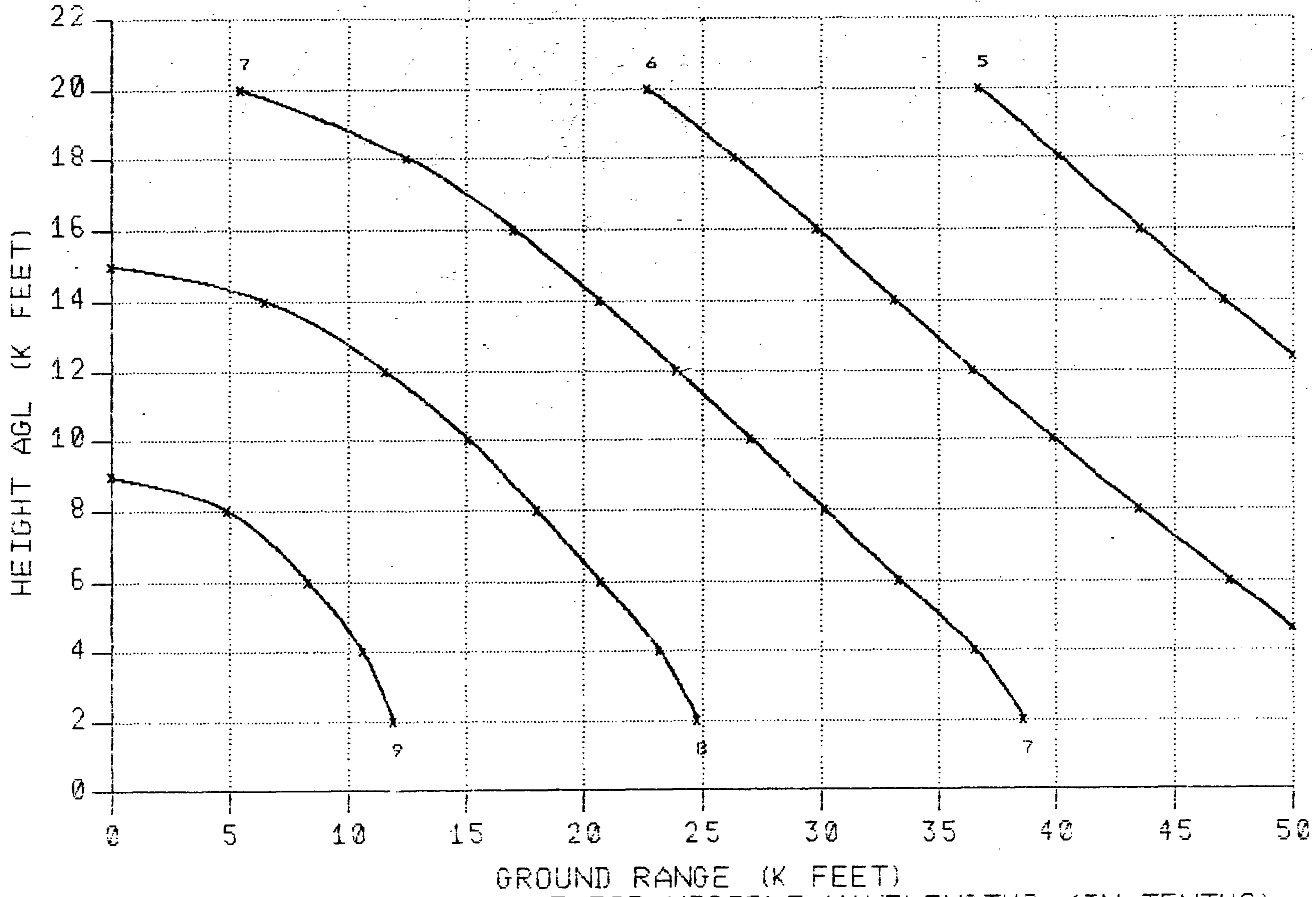
BKGND. REFLECTANCE: 50 TO 99 PERCENT
SOLAR ELEV. ANGLE : 31 TO 55 DEGREE
SURFACE VISIBILITY: 5 MILES (8.0 KM)
MIXING LYR. DEPTH : BELOW 50 FEET



CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

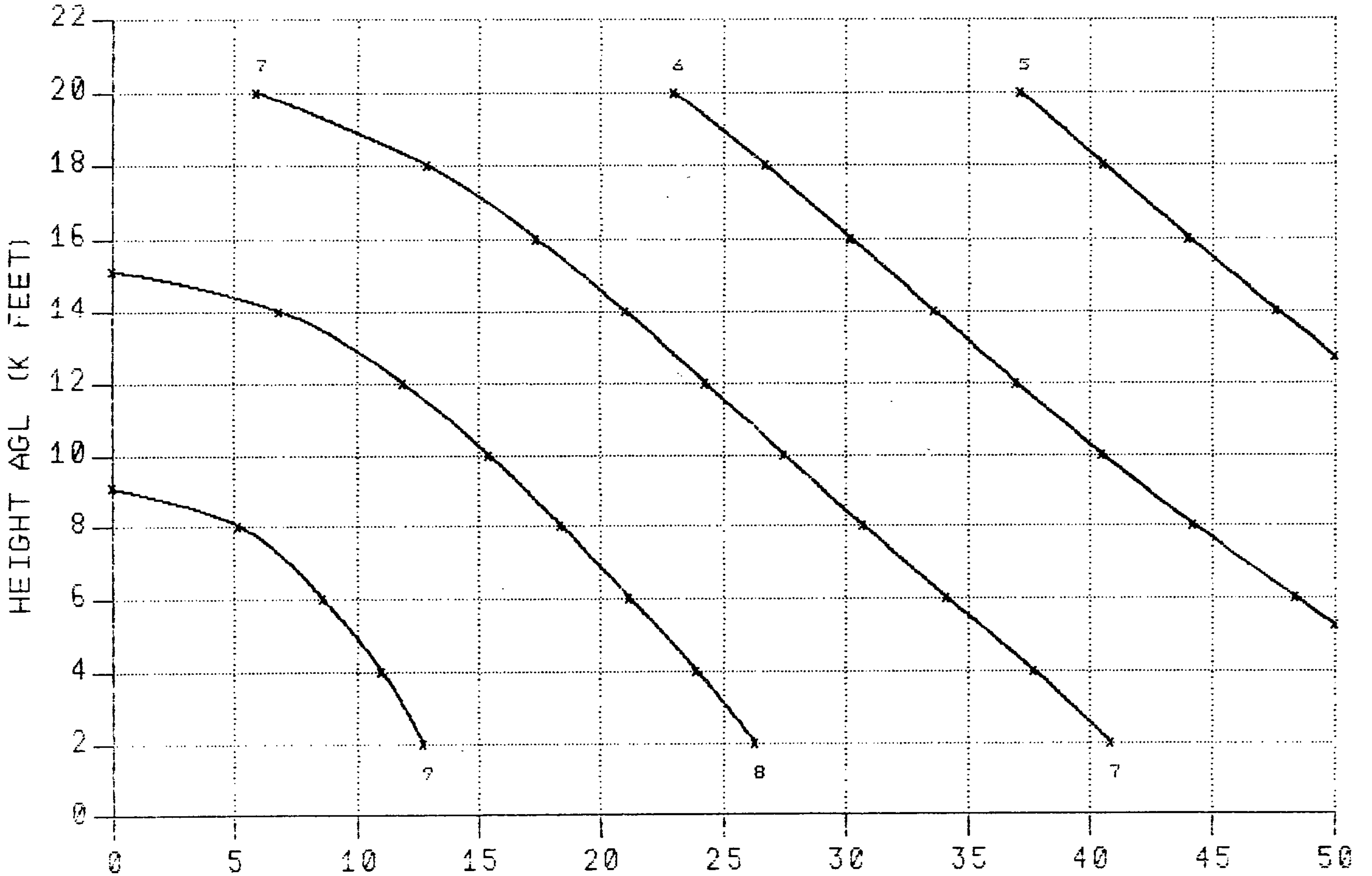
CLOUD-COVER: CLR-SCT

BKGND. REFLECTANCE: 50 TO 99 PERCENT
SOLAR ELEV. ANGLE : 31 TO 55 DEGREE
SURFACE VISIBILITY: 7 MILES (11.3 KM)
MIXING LYR. DEPTH : BELOW 50 FEET



CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

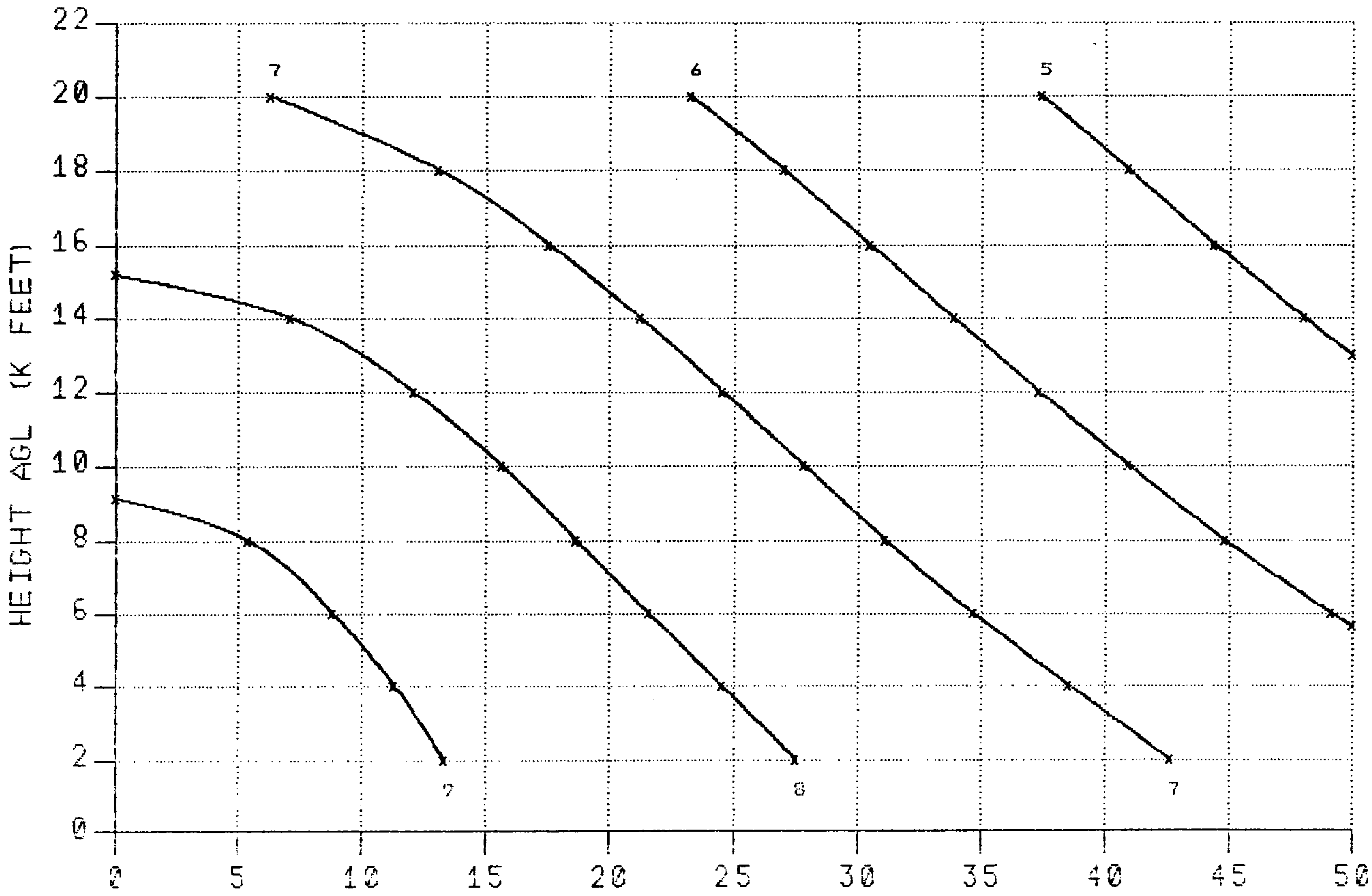
CLOUD COVER: CLR-SCT BKGND. REFLECTANCE: 50 TO 99 PERCENT
SOLAR ELEV. ANGLE : 31 TO 55 DEGREE
SURFACE VISIBILITY: 10 MILES (16.1 KM)
MIXING LYR. DEPTH : BELOW 50 FEET



CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

CLOUD COVER: CLR-SCT

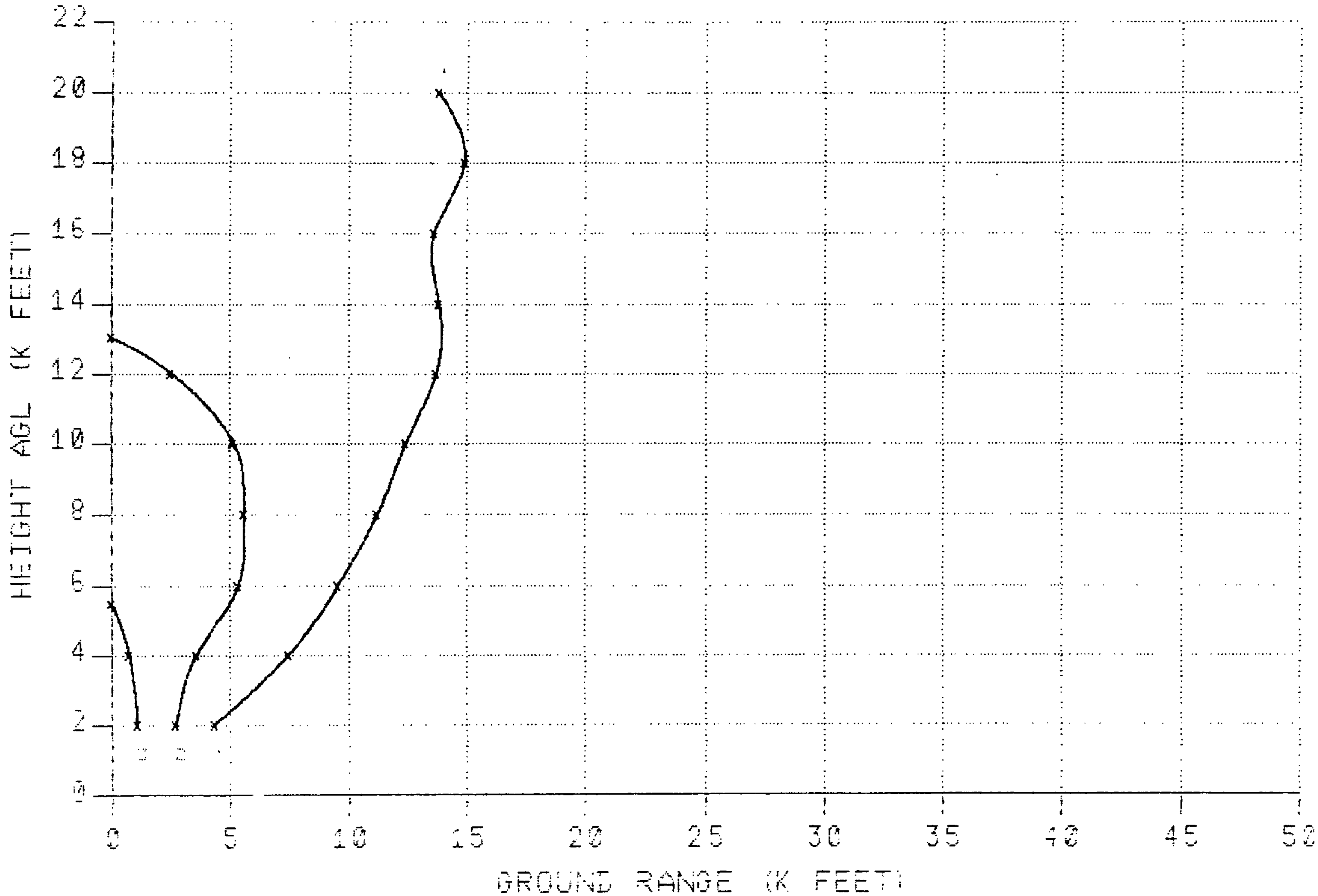
BKGND. REFLECTANCE: 50 TO 99 PERCENT
SOLAR ELEV. ANGLE : 31 TO 55 DEGREE
SURFACE VISIBILITY: 15 MILES (24.1 KM)
MIXING LYR. DEPTH : BELOW 50 FEET



CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

CLOUD COVER: CLR-SCT

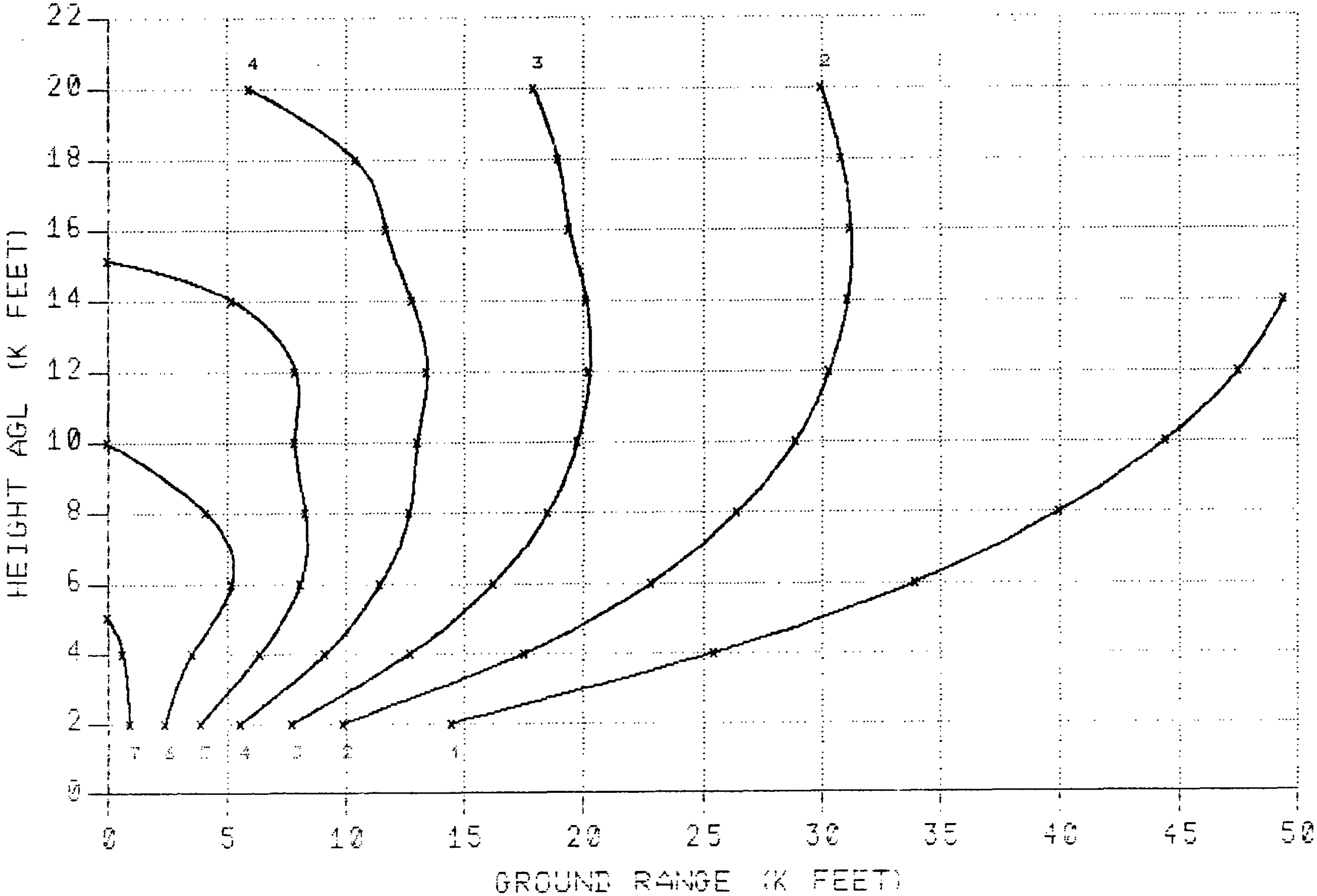
BKGND. REFLECTANCE: 50 TO 99 PERCENT
SOLAR ELEV. ANGLE : 31 TO 55 DEGREE
SURFACE VISIBILITY: 1 MILE (1.6 KM)
MIXING LYR. DEPTH : 1500 FEET



CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

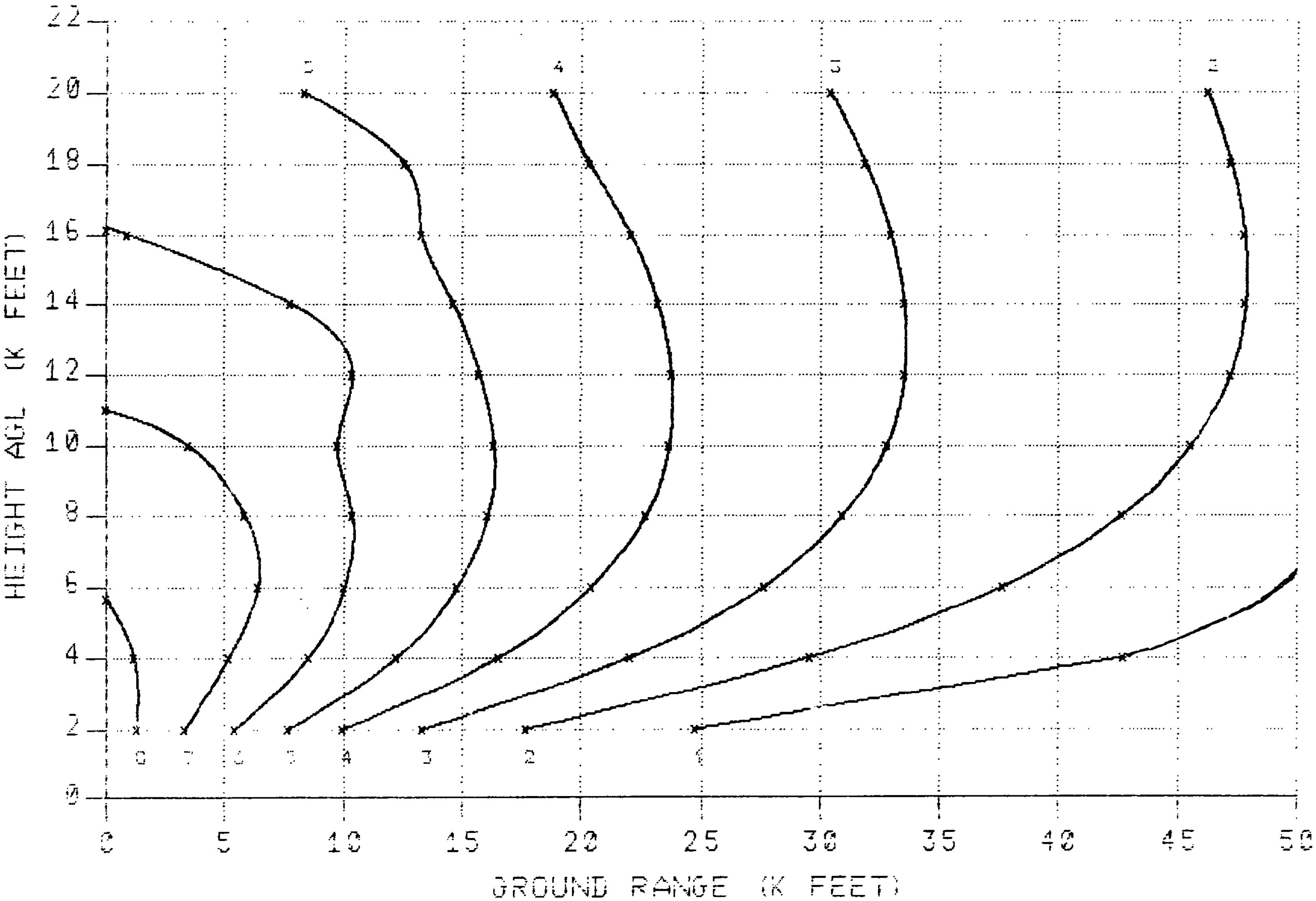
CLOUD COVER: CLR-SCT

BKGND. REFLECTANCE: 50 TO 99 PERCENT
SOLAR ELEV. ANGLE : 31 TO 55 DEGREE
SURFACE VISIBILITY: 3 MILES (4.8 KM)
MIXING LYR. DEPTH : 1500 FEET



CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

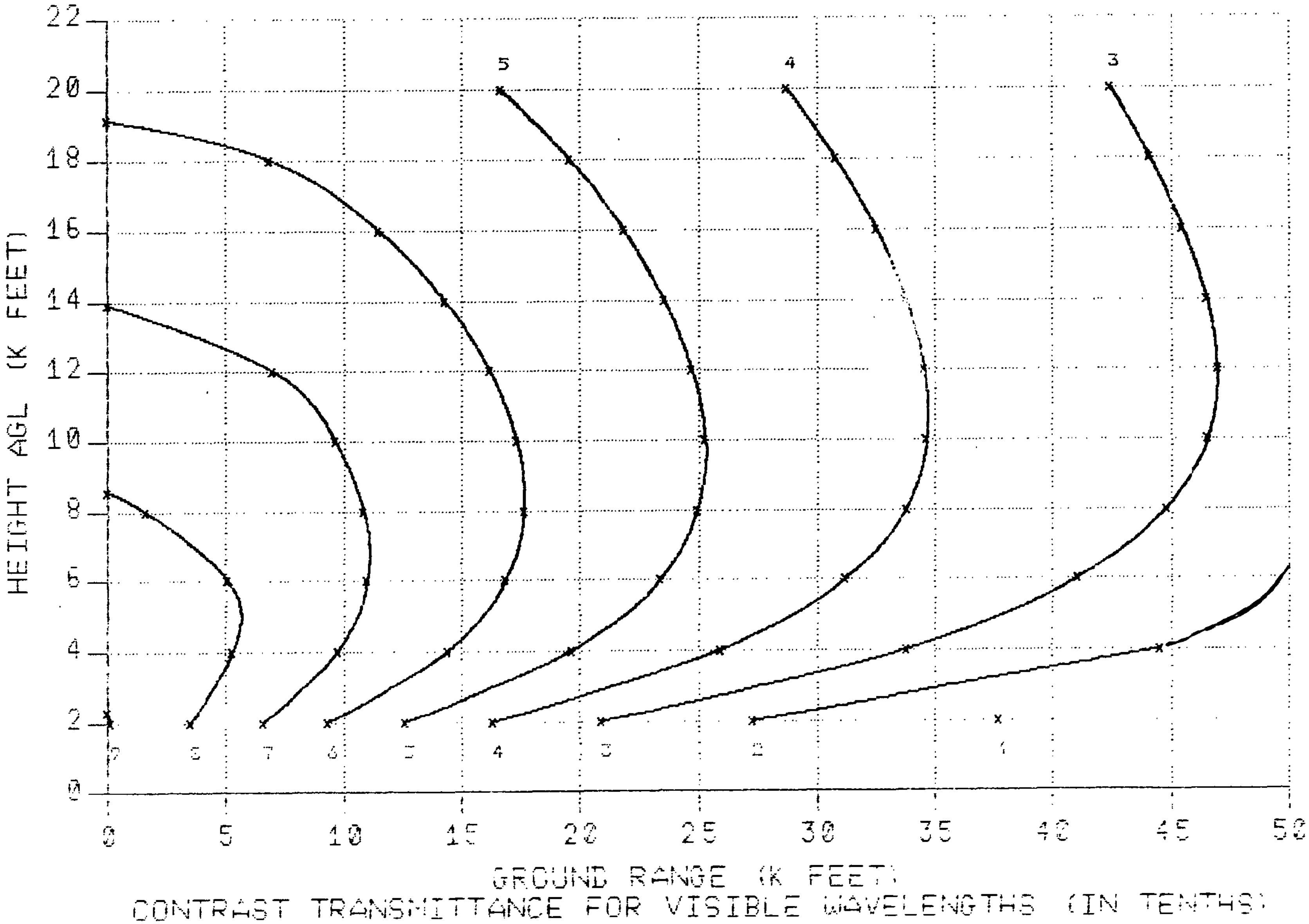
CLOUD COVER: CLR-SCT BKGND. REFLECTANCE: 50 TO 99 PERCENT
SOLAR ELEV. ANGLE : 31 TO 55 DEGREE
SURFACE VISIBILITY: 5 MILES (8.0 KM)
MIXING LYR. DEPTH : 1500 FEET



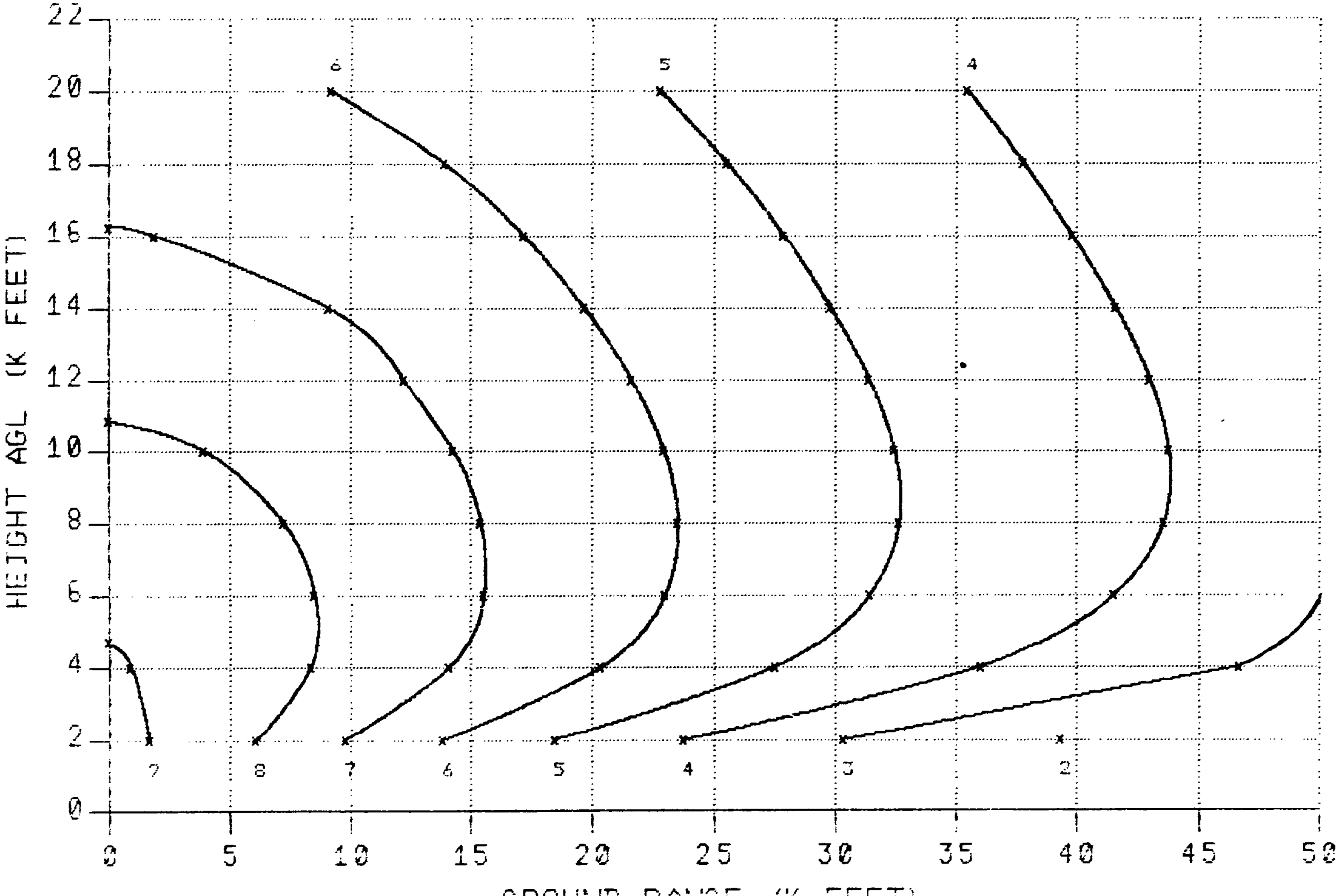
CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

CLOUD COVER: CLR-SCT

BKGND. REFLECTANCE: 50 TO 99 PERCENT
SOLAR ELEV. ANGLE : 31 TO 55 DEGREE
SURFACE VISIBILITY: 7 MILES (11.3 KM)
MIXING LYR. DEPTH : 1500 FEET



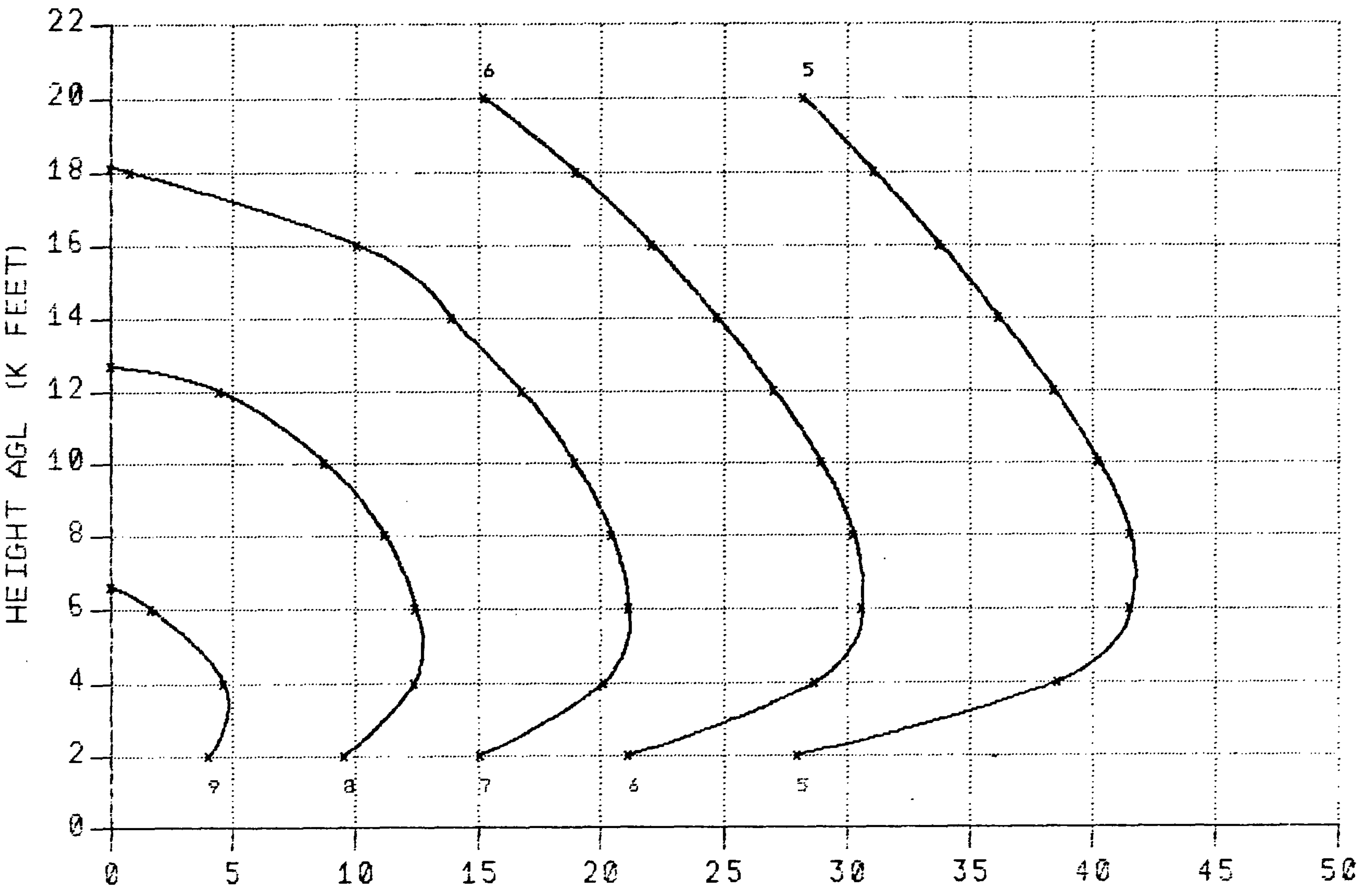
CLOUD COVER: CLR-SCT BKGND. REFLECTANCE: 50 TO 99 PERCENT
SOLAR ELEV. ANGLE : 31 TO 55 DEGREE
SURFACE VISIBILITY: 10 MILES (16.1 KM)
MIXING LYR. DEPTH : 1500 FEET



CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

CLOUD COVER: CLR-SCT

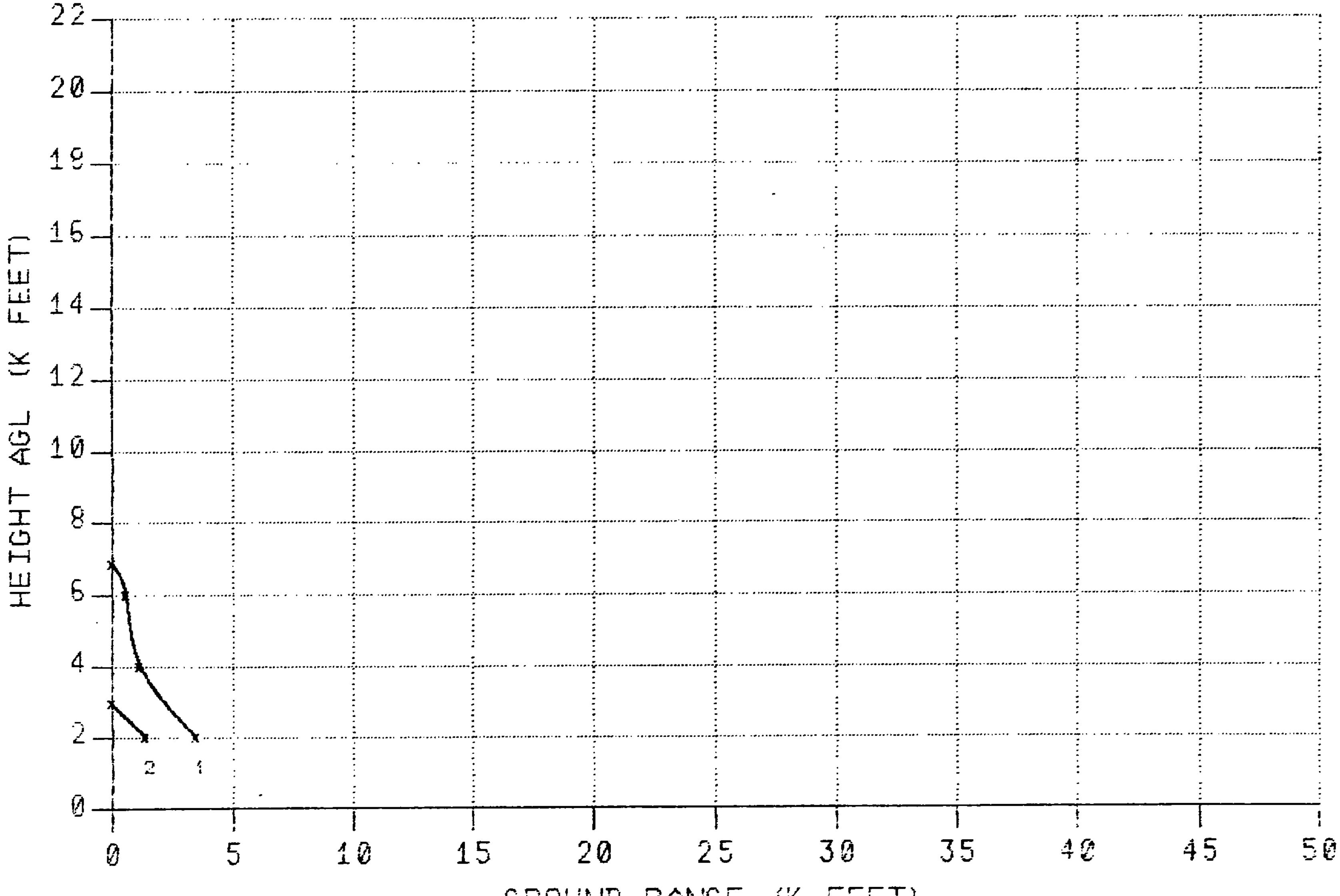
BKGND. REFLECTANCE: 50 TO 99 PERCENT
SOLAR ELEV. ANGLE : 31 TO 55 DEGREE
SURFACE VISIBILITY: 15 MILES (24.1 KM)
MIXING LYR. DEPTH : 1500 FEET



CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

CLOUD COVER: CLR-SCT

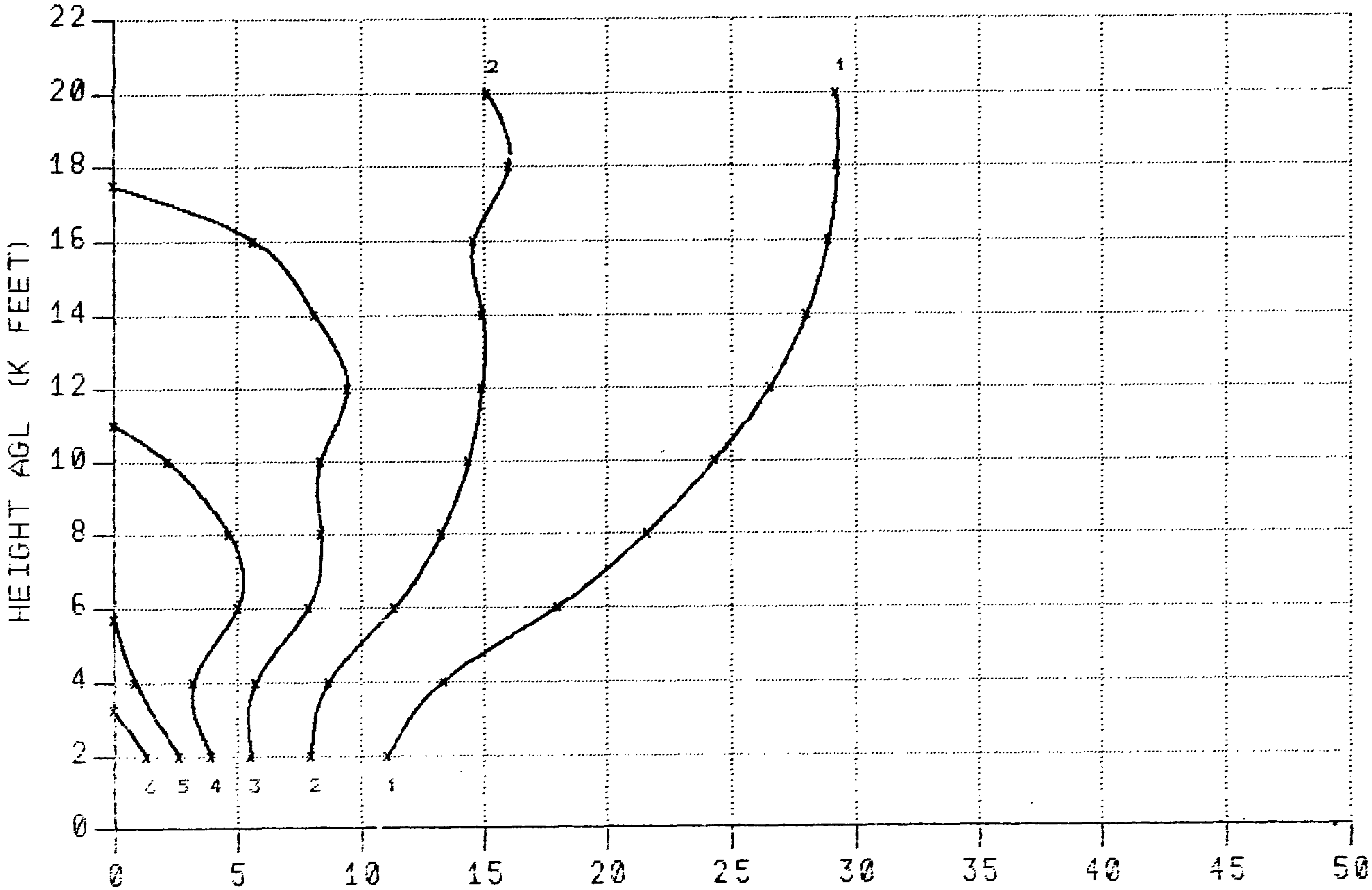
BKGND. REFLECTANCE: 50 TO 99 PERCENT
SOLAR ELEV. ANGLE : 31 TO 55 DEGREE
SURFACE VISIBILITY: 1 MILE (1.6 KM)
MIXING LYR. DEPTH : 3000 FEET



CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

CLOUD_COVER: CLR-SCT

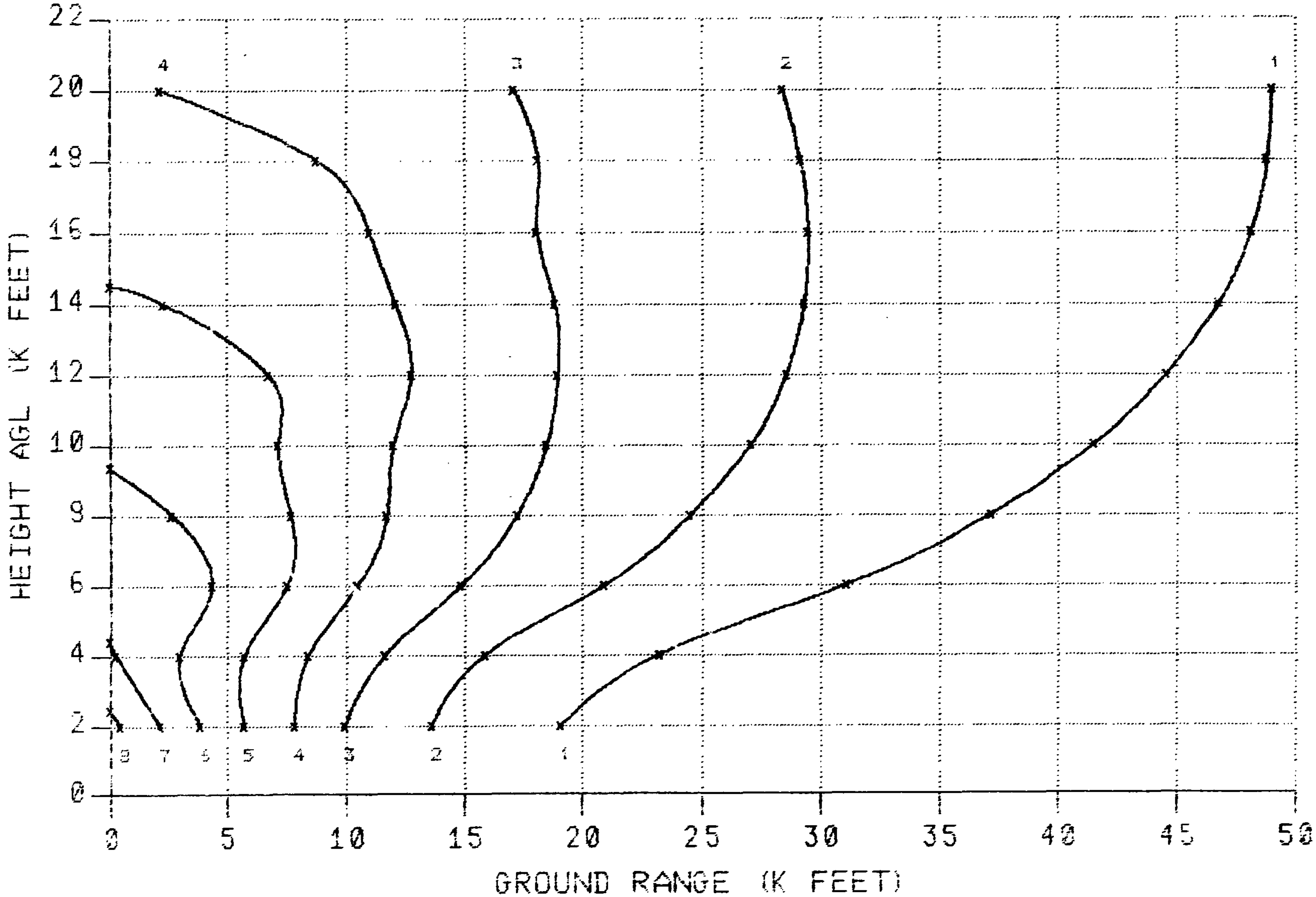
BKGND. REFLECTANCE: 50 TO 99 PERCENT
SOLAR ELEV. ANGLE : 31 TO 55 DEGREE
SURFACE VISIBILITY: 3 MILES (4.8 KM)
MIXING LYR. DEPTH : 3000 FEET



GROUND RANGE (K FEET)

CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

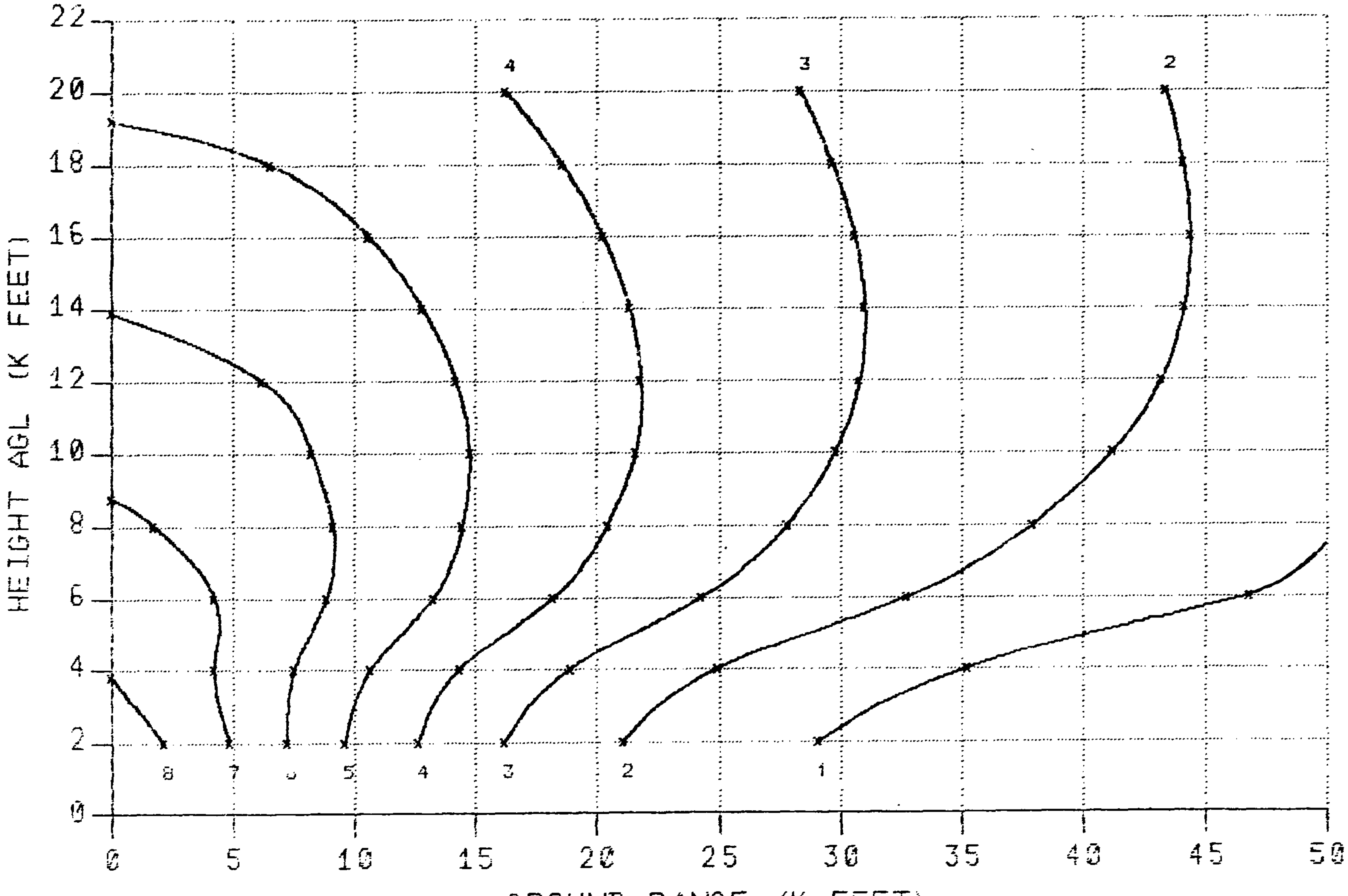
CLOUD COVER: CLR-SCT
BKGND. REFLECTANCE: 50 TO 99 PERCENT
SOLAR ELEV. ANGLE : 31 TO 55 DEGREE
SURFACE VISIBILITY: 5 MILES (8.0 KM)
MIXING LYR. DEPTH : 3000 FEET



CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

CLOUD COVER: CLR-SCT

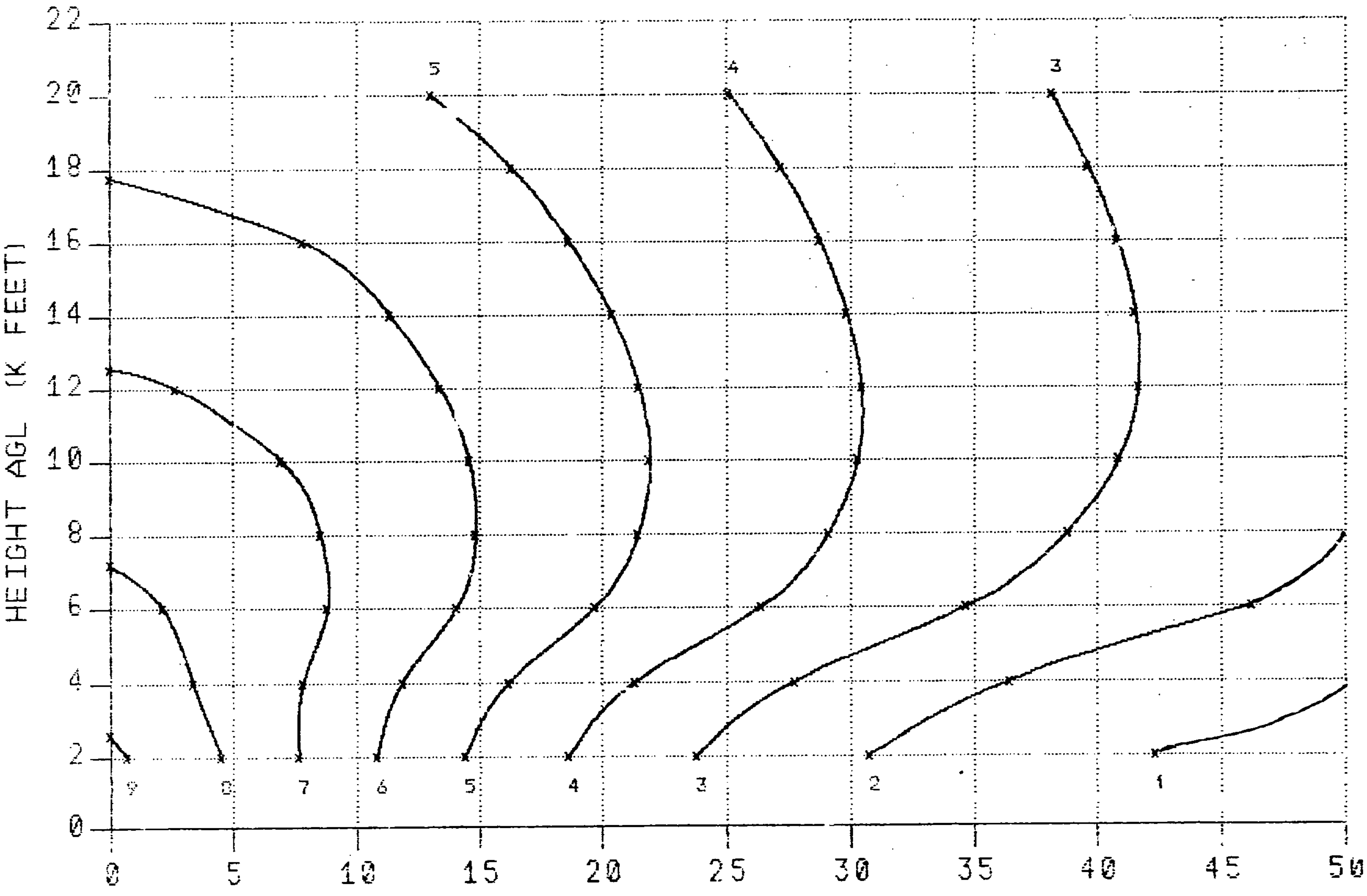
BKGND. REFLECTANCE: 50 TO 99 PERCENT
SOLAR ELEV. ANGLE : 31 TO 55 DEGREE
SURFACE VISIBILITY: 7 MILES (11.3 KM)
MIXING LYR. DEPTH : 3000 FEET



CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

CLOUD COVER: CLR-SCT

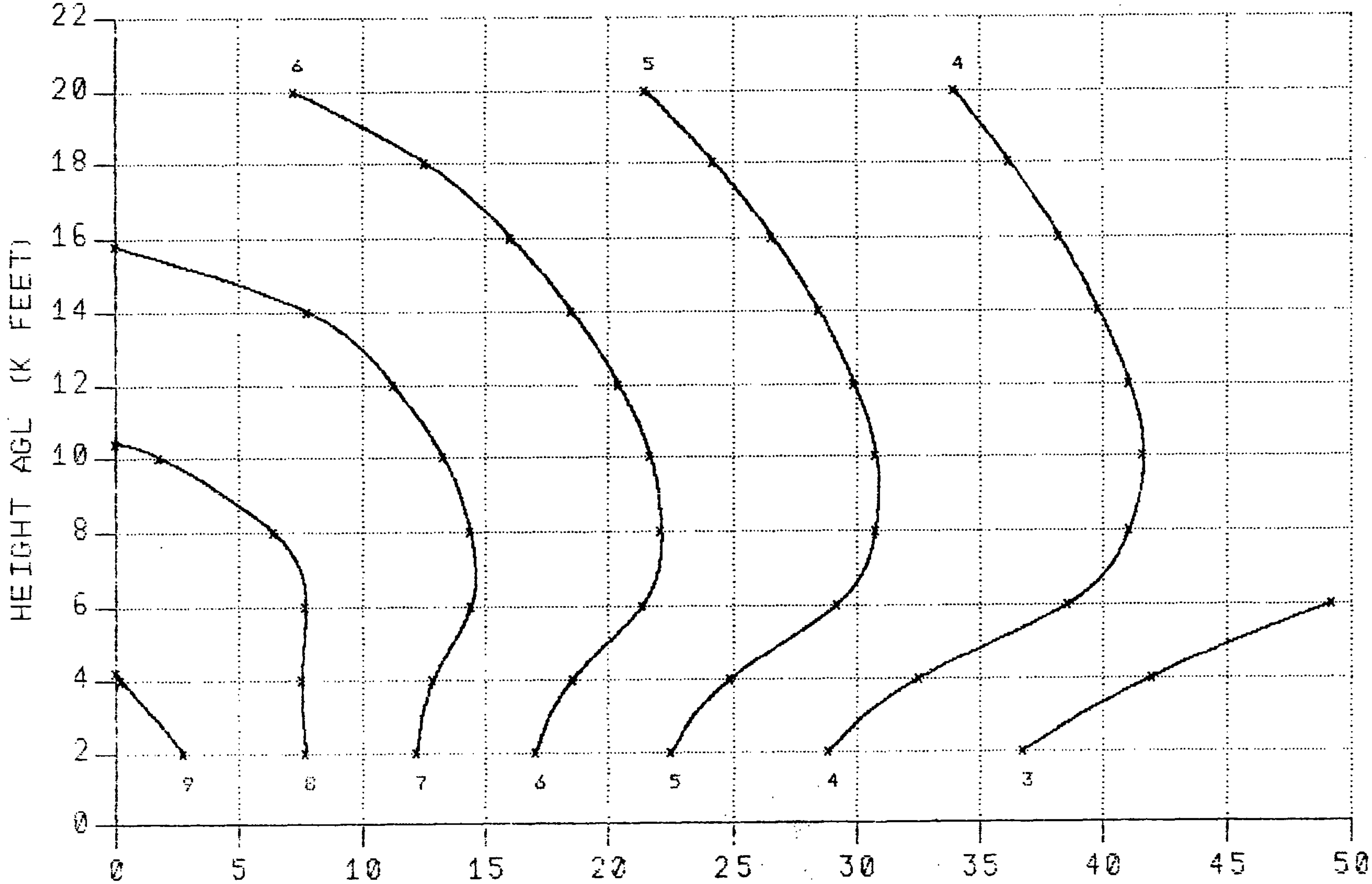
BKGND. REFLECTANCE: 50 TO 99 PERCENT
SOLAR ELEV. ANGLE : 31 TO 55 DEGREE
SURFACE VISIBILITY: 10 MILES (16.1 KM)
MIXING LYR. DEPTH : 3000 FEET



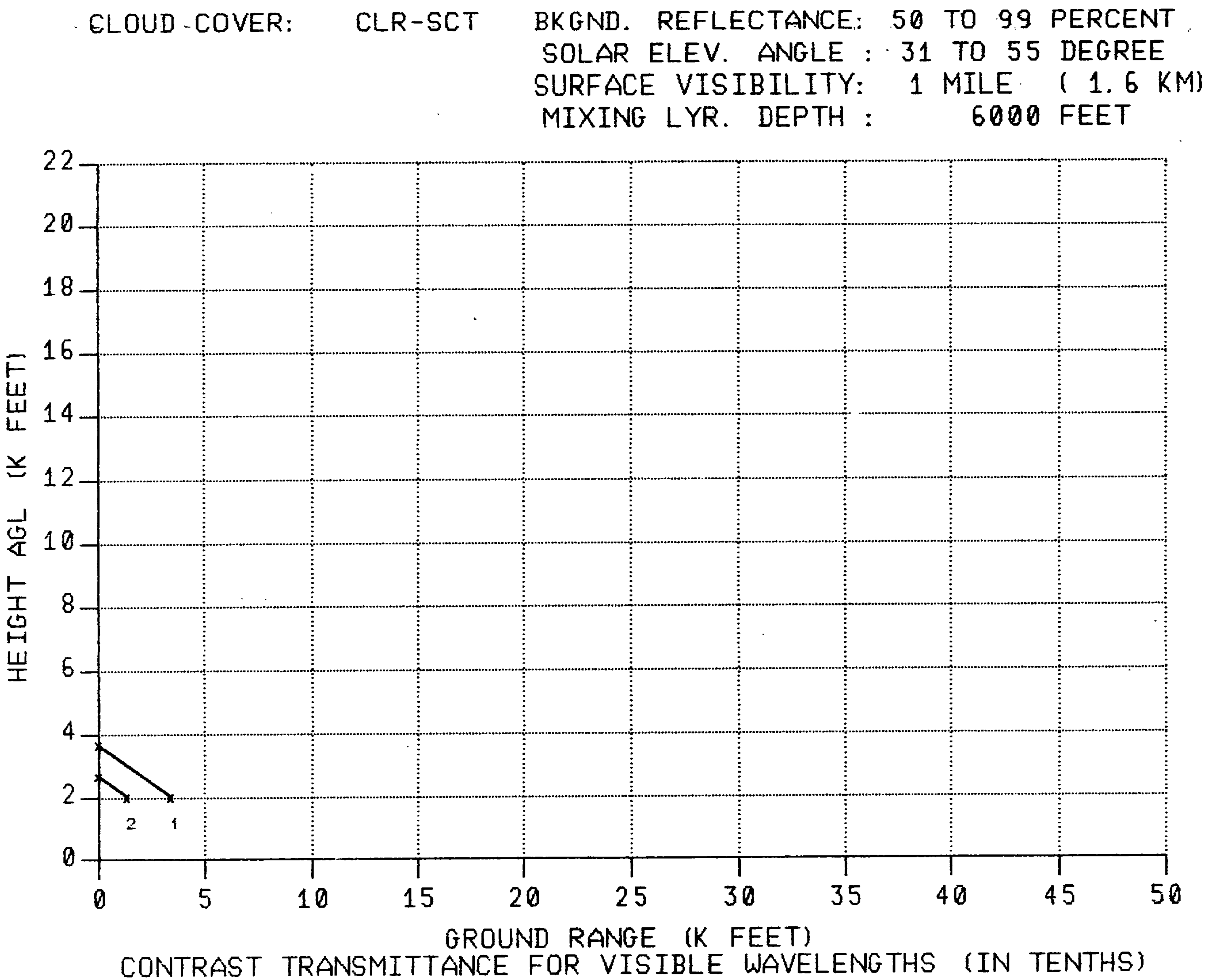
CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

CLOUD COVER: CLR-SCT

BKGND. REFLECTANCE: 50 TO 99 PERCENT
SOLAR ELEV. ANGLE : 31 TO 55 DEGREE
SURFACE VISIBILITY: 15 MILES (24.1 KM)
MIXING LYR. DEPTH : 3000 FEET

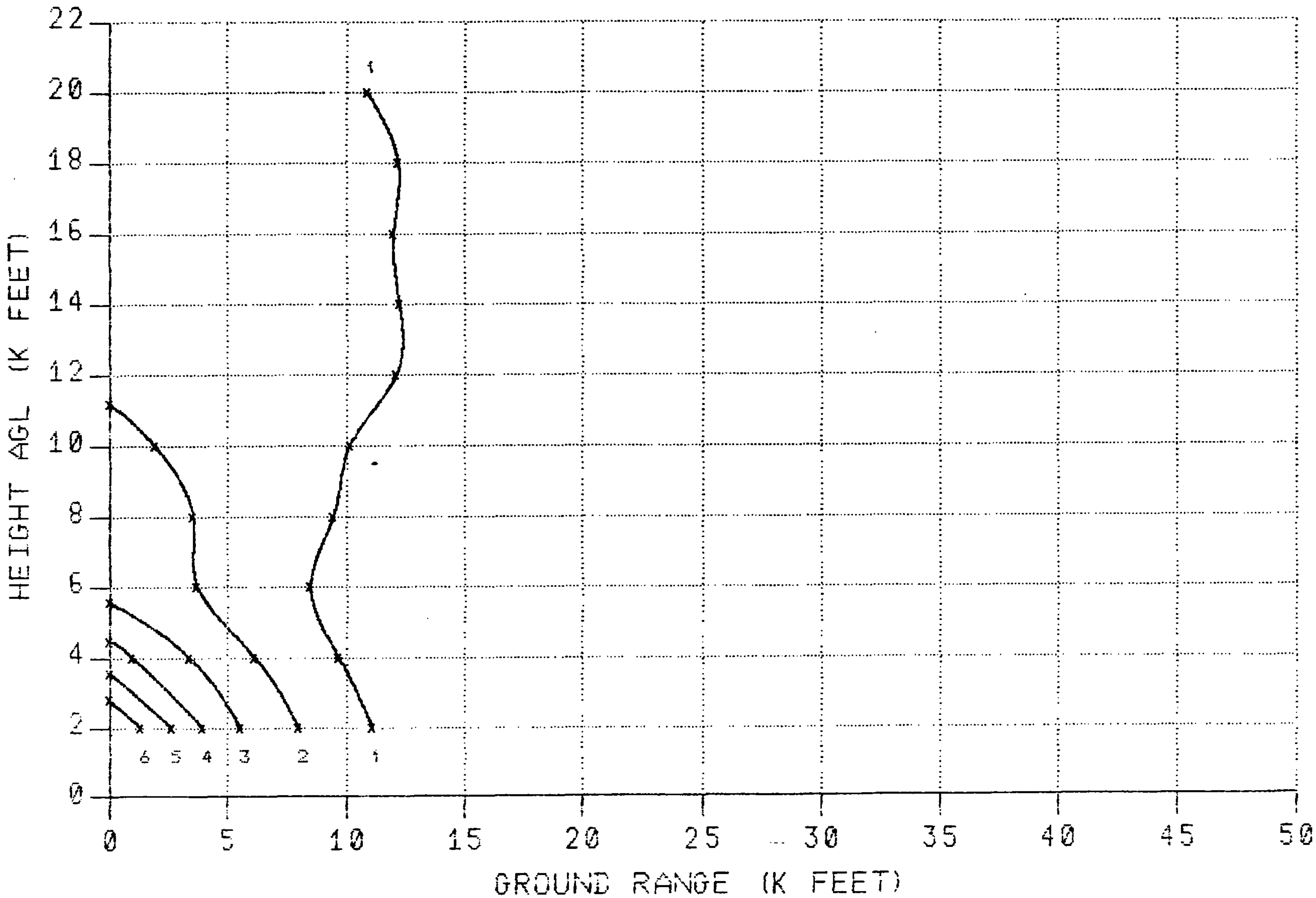


GROUND RANGE (K FEET)
CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)


CLOUD COVER: CLR-SCT
BKGND. REFLECTANCE: 50 TO 99 PERCENT
SOLAR ELEV. ANGLE : 31 TO 55 DEGREE
SURFACE VISIBILITY: 1 MILE (1.6 KM)
MIXING LYR. DEPTH : 6000 FEET
HEIGHT AGL (K FEET)
22
20
18
16
14
12
10
8
6
4
2
0
0
5
10
15
20
25
30
35
40
45
50
2
1
GROUND RANGE (K FEET)
CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

CLOUD COVER: CLR-SCT

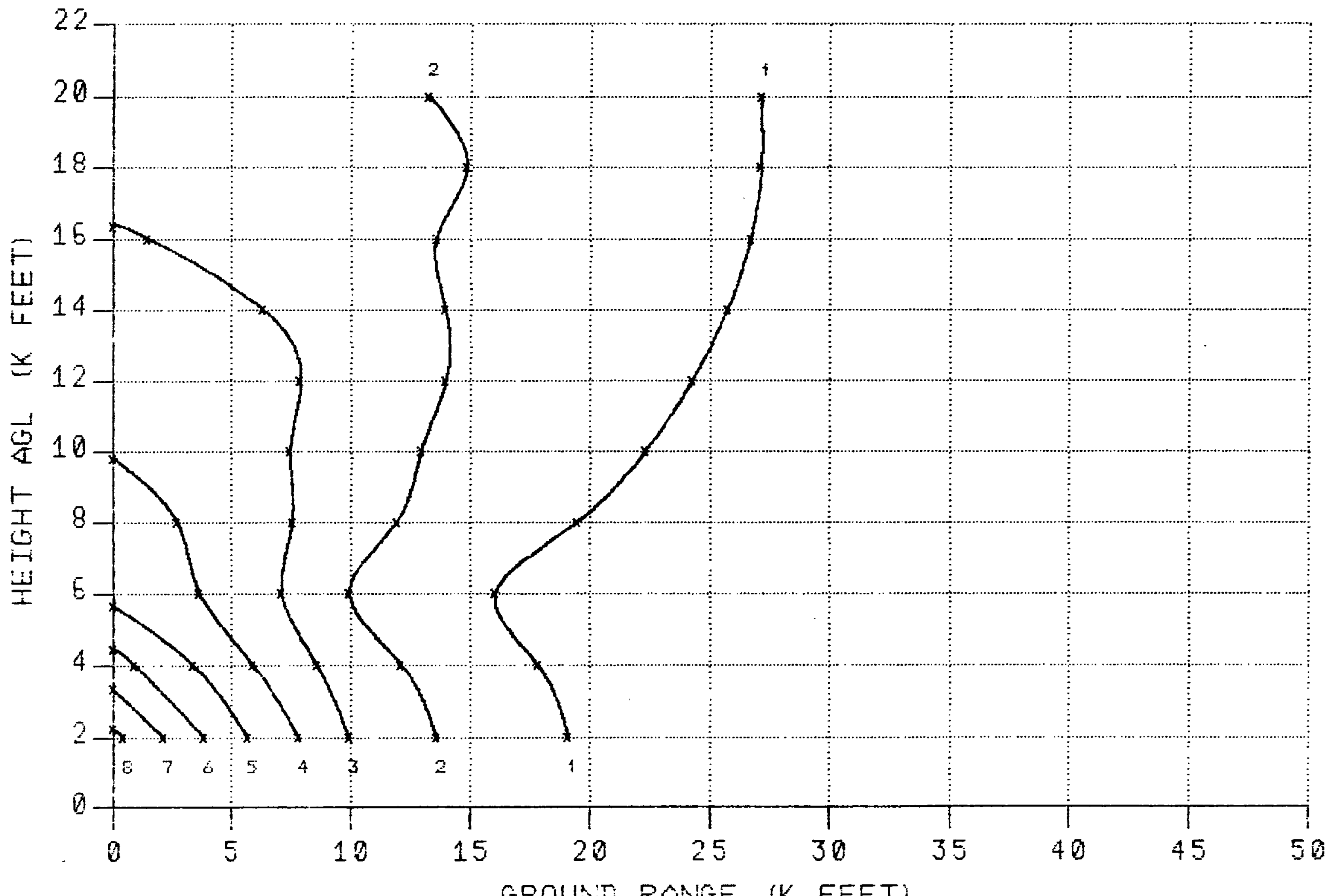
BKGND. REFLECTANCE: 50 TO 99 PERCENT
SOLAR ELEV. ANGLE : 31 TO 55 DEGREE
SURFACE VISIBILITY: 3 MILES (4.8 KM)
MIXING LYR. DEPTH : 6000 FEET



CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

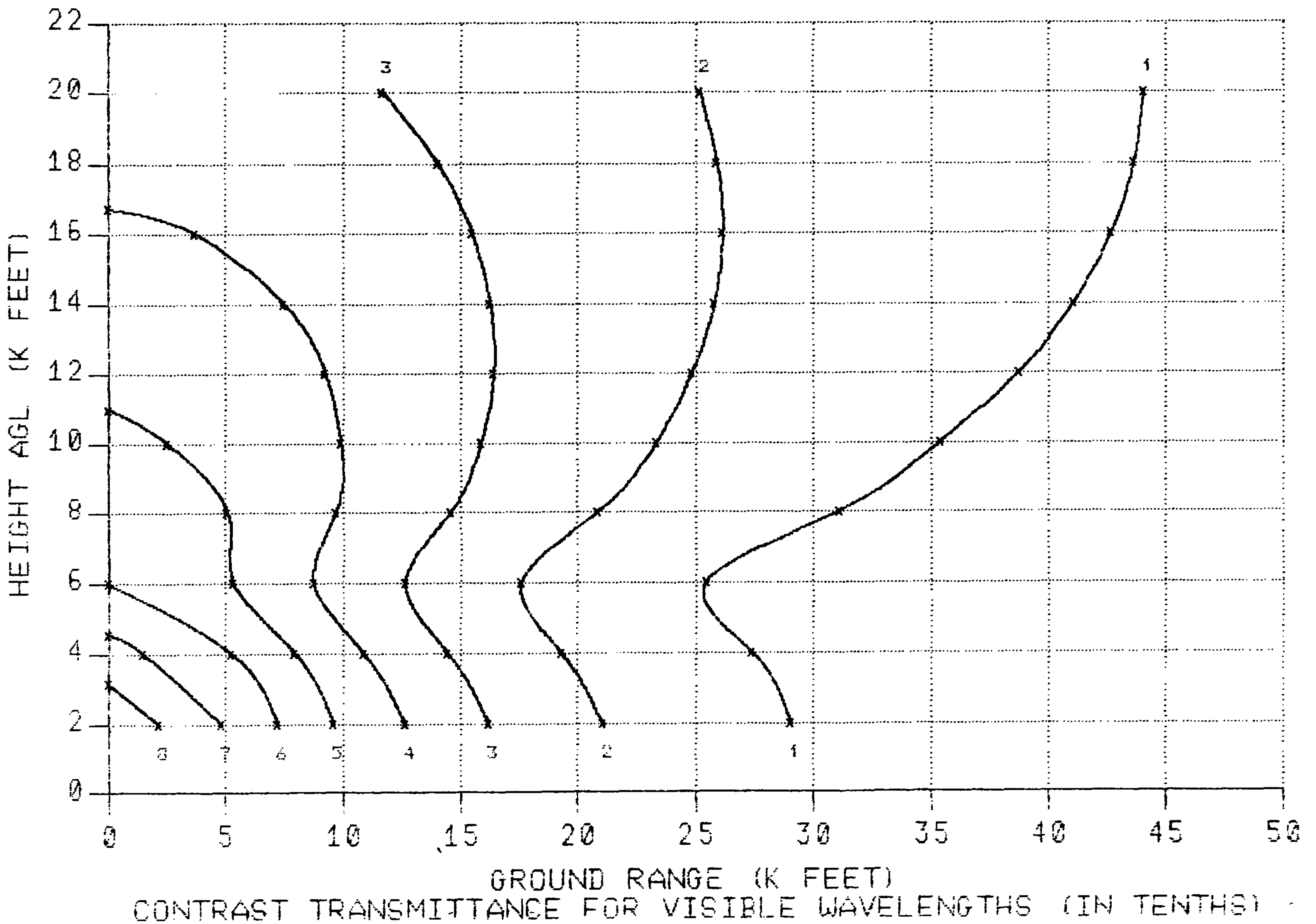
CLOUD COVER: CLR-SCT

BKGND. REFLECTANCE: 50 TO 99 PERCENT
SOLAR ELEV. ANGLE : 31 TO 55 DEGREE
SURFACE VISIBILITY: 5 MILES (8.0 KM)
MIXING LYR. DEPTH : 6000 FEET



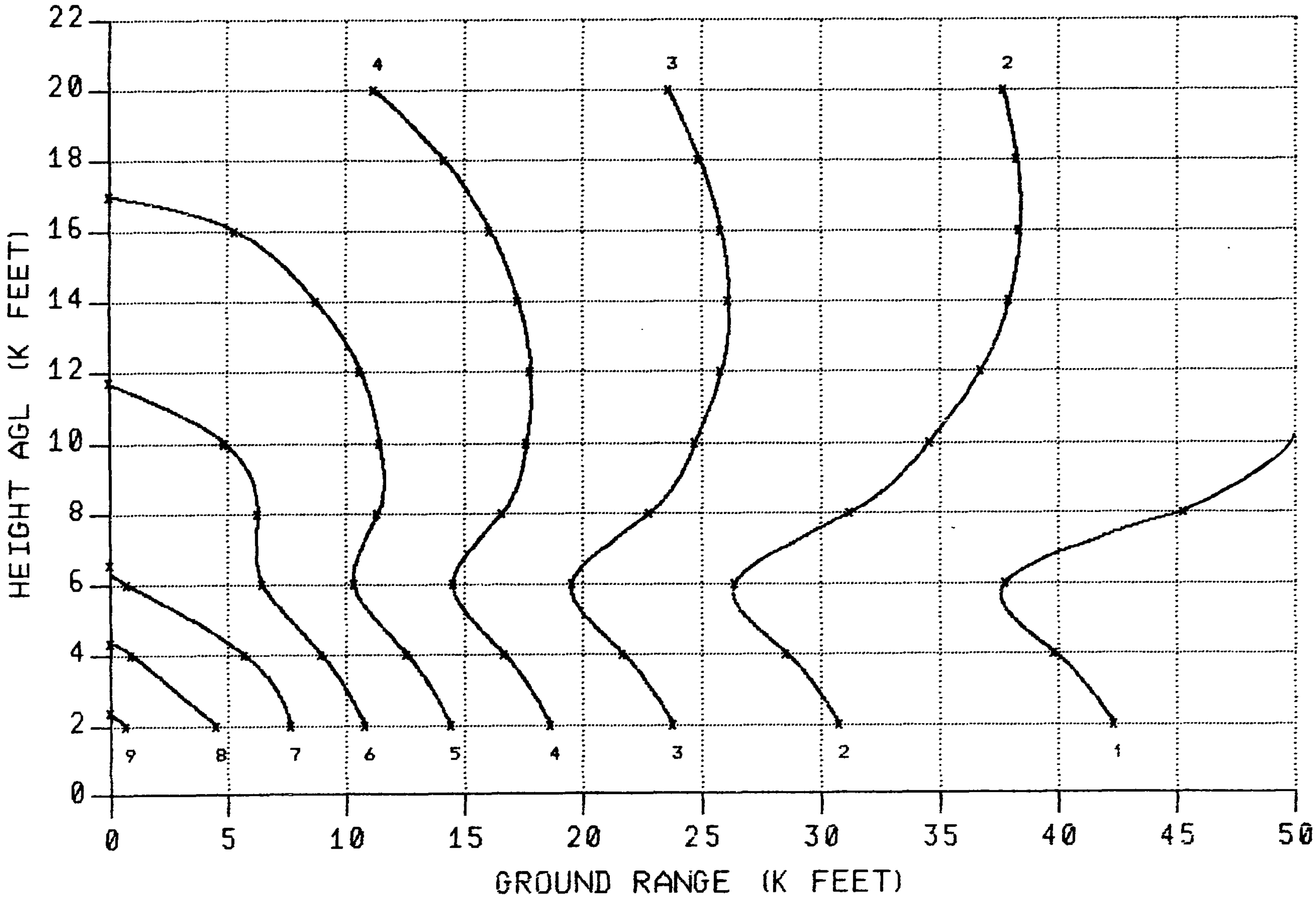
CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

CLOUD COVER: CLR-SCT BKGND. REFLECTANCE: 50 TO 99 PERCENT
SOLAR ELEV. ANGLE : 31 TO 55 DEGREE
SURFACE VISIBILITY: 7 MILES (11.3 KM)
MIXING LYR. DEPTH : 6000 FEET



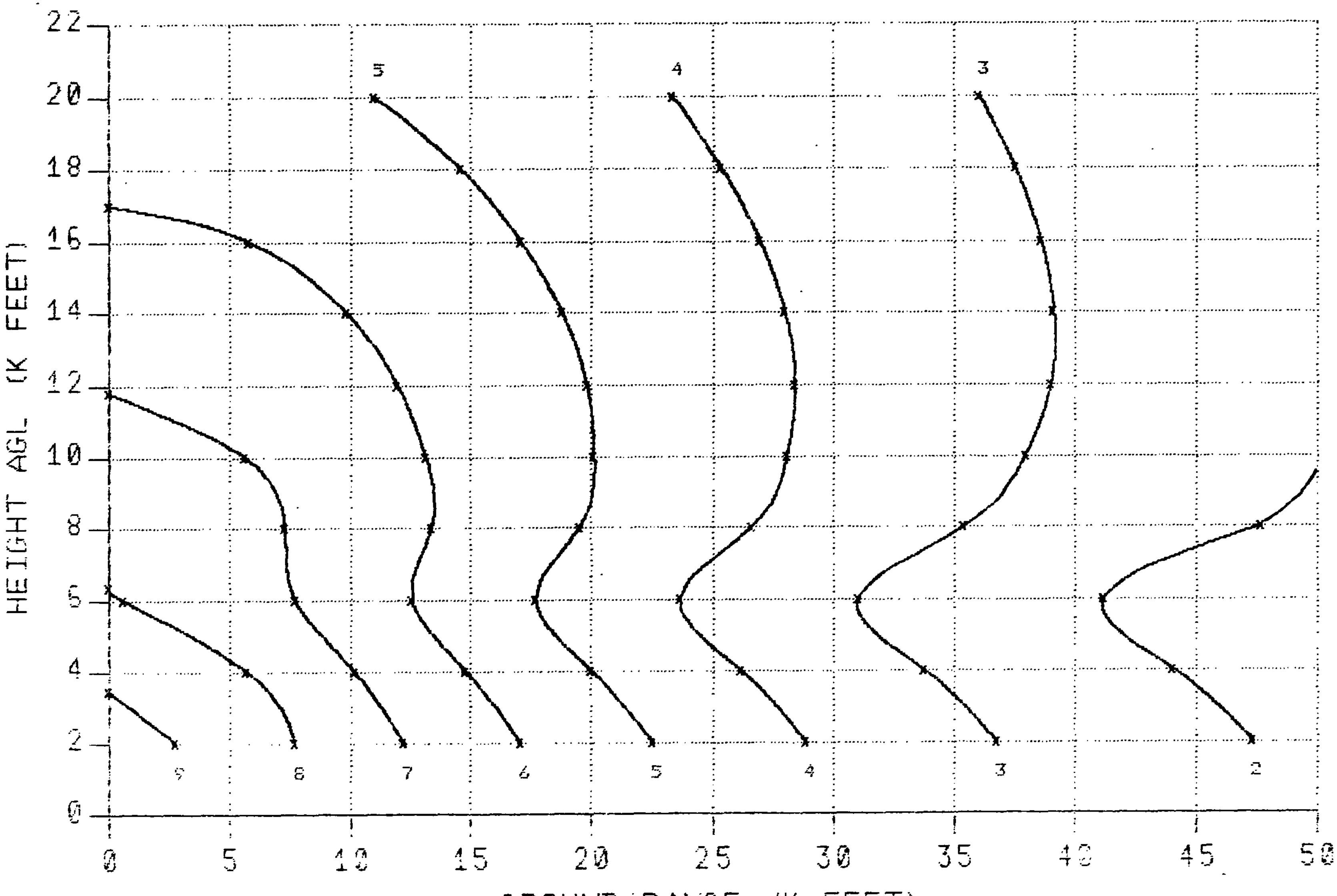
CLOUD COVER: CLR-SCT

BKGND. REFLECTANCE: 50 TO 99 PERCENT
SOLAR ELEV. ANGLE : 31 TO 55 DEGREE
SURFACE VISIBILITY: 10 MILES (16.1 KM)
MIXING LYR. DEPTH : 6000 FEET



CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

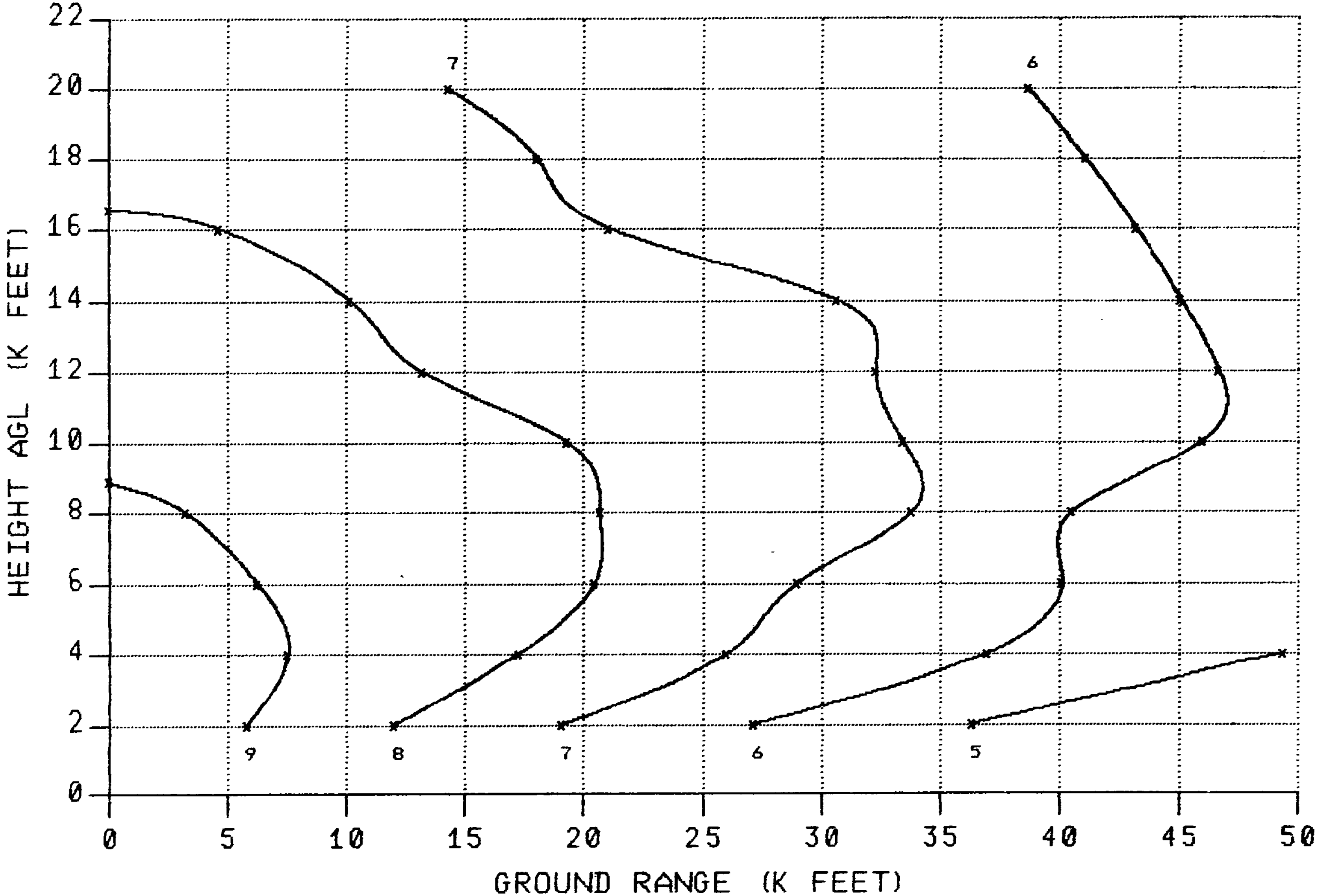
CLOUD COVER: CLR-SCT BKGND. REFLECTANCE: 50 TO 99 PERCENT
SOLAR ELEV. ANGLE : 31 TO 55 DEGREE
SURFACE VISIBILITY: 15 MILES (24.1 KM)
MIXING LYR. DEPTH : 6000 FEET



CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

CLOUD COVER: CLR-SCT

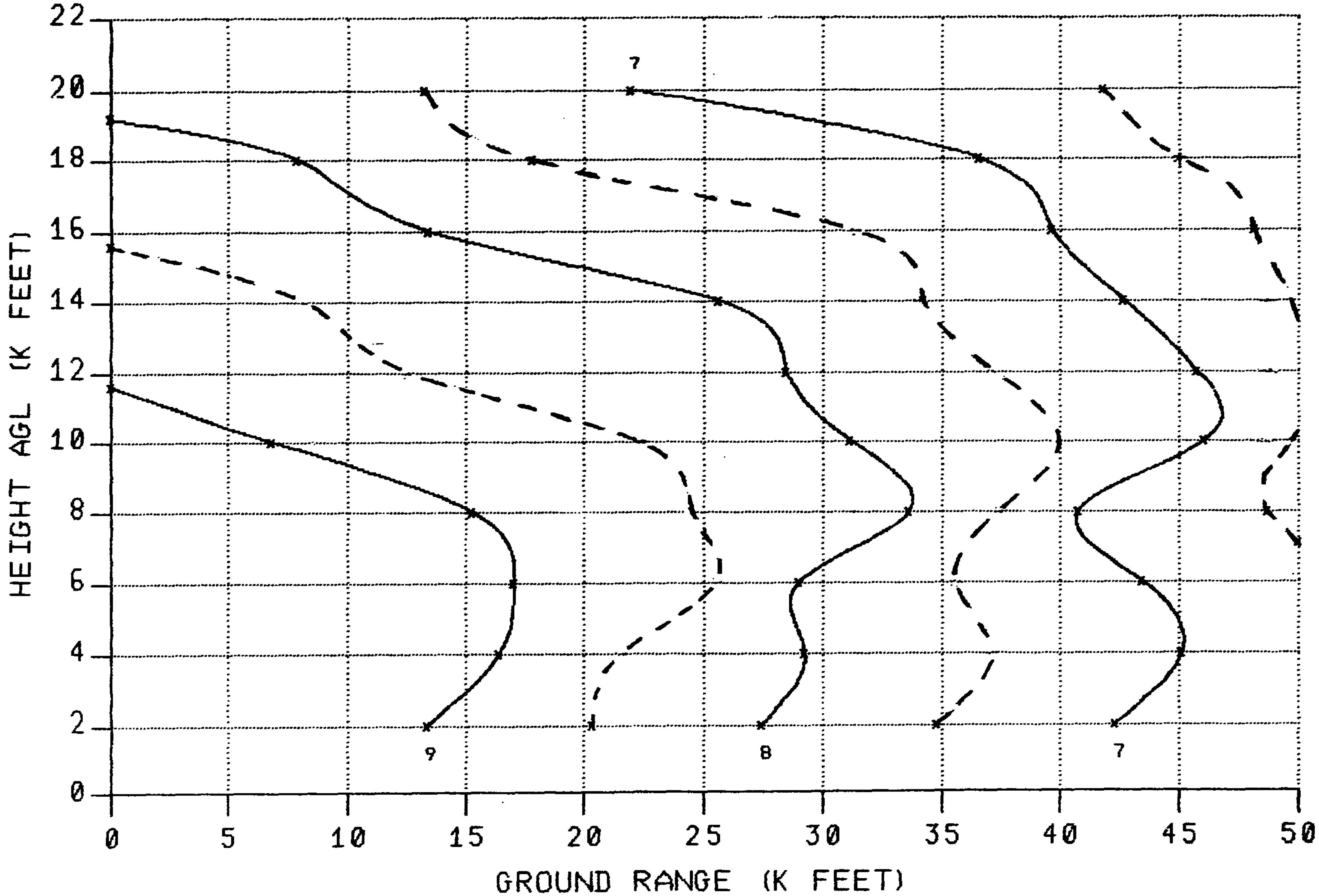
BKGND. REFLECTANCE: 50 TO 99 PERCENT
SOLAR ELEV. ANGLE : 56 TO 90 DEGREE
SURFACE VISIBILITY: 1 MILE (1.6 KM)
MIXING LYR. DEPTH : BELOW 50 FEET



CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

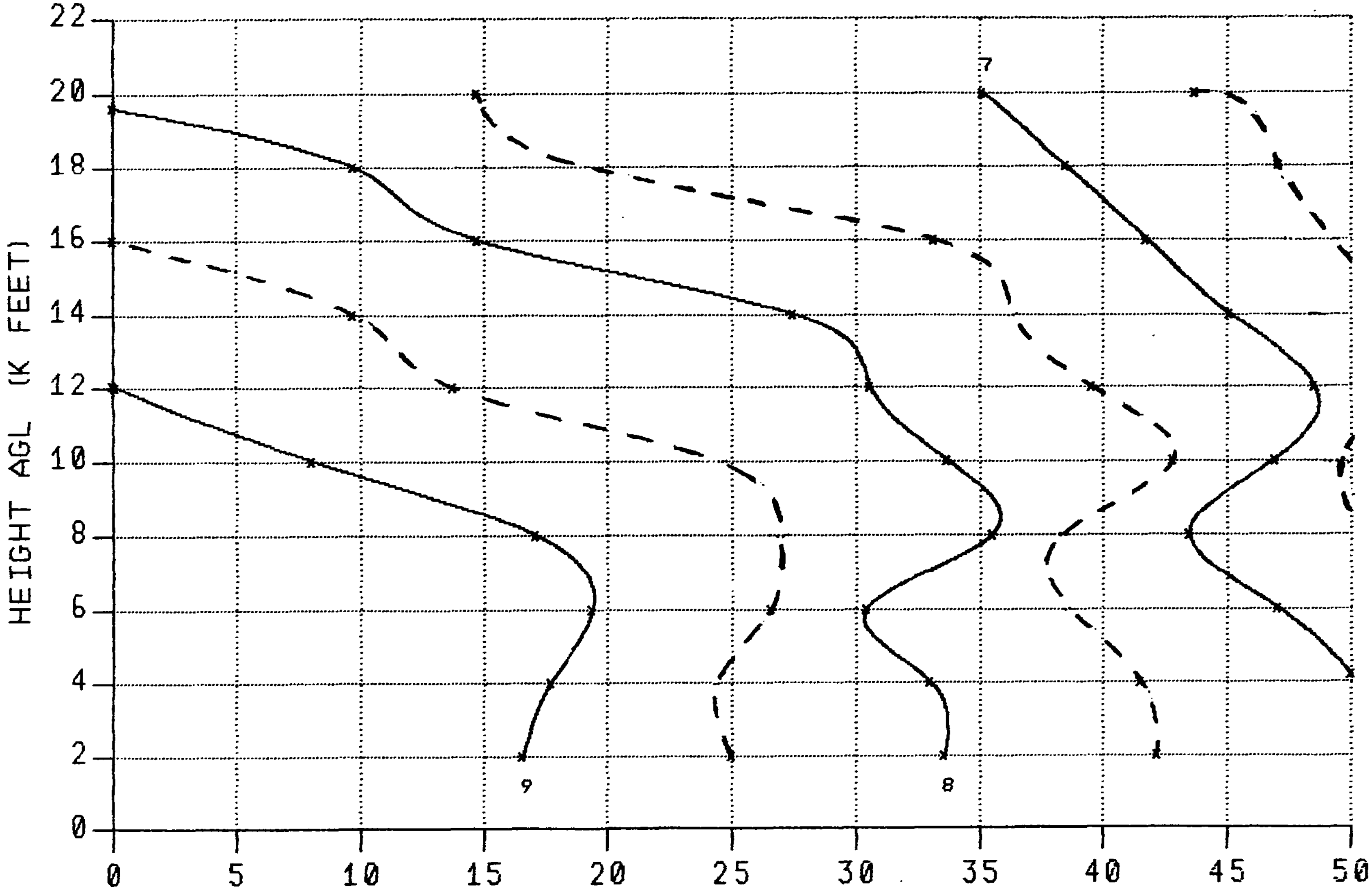
CLOUD COVER: CLR-SCT

BKGND. REFLECTANCE: 50 TO 99 PERCENT
SOLAR ELEV. ANGLE : 56 TO 90 DEGREE
SURFACE VISIBILITY: 3 MILES (4.8 KM)
MIXING LYR. DEPTH : BELOW 50 FEET



CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

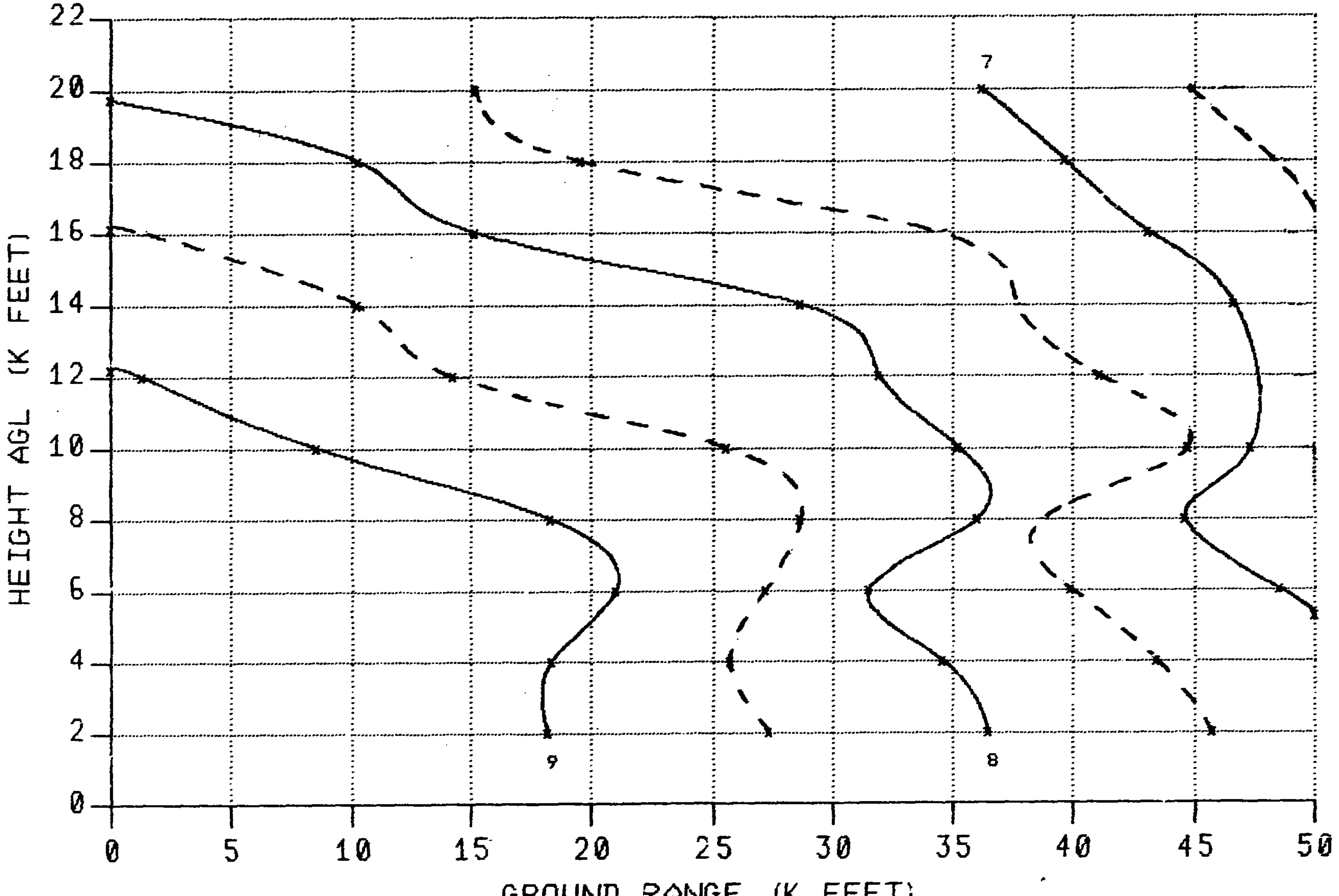
CLOUD COVER: CLR-SCT BKGND. REFLECTANCE: 50 TO 99 PERCENT
SOLAR ELEV. ANGLE : 56 TO 90 DEGREE
SURFACE VISIBILITY: 5 MILES (8.0 KM)
MIXING LYR. DEPTH : BELOW 50 FEET



CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

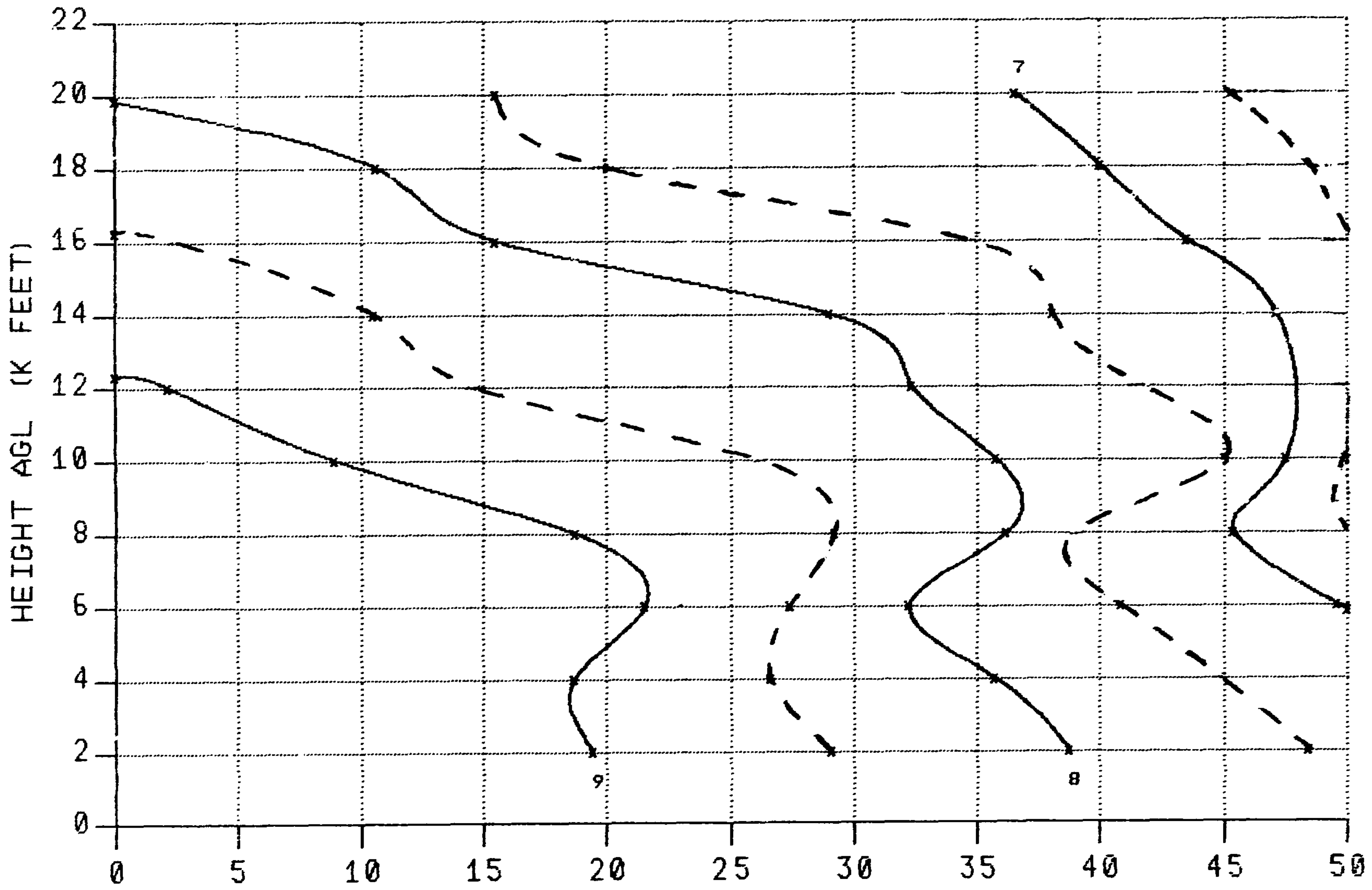
CLOUD COVER: CLR-SCT

BKGND. REFLECTANCE: 50 TO 99 PERCENT
SOLAR ELEV. ANGLE : 56 TO 90 DEGREE
SURFACE VISIBILITY: 7 MILES (11.3 KM)
MIXING LYR. DEPTH : BELOW 50 FEET



CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

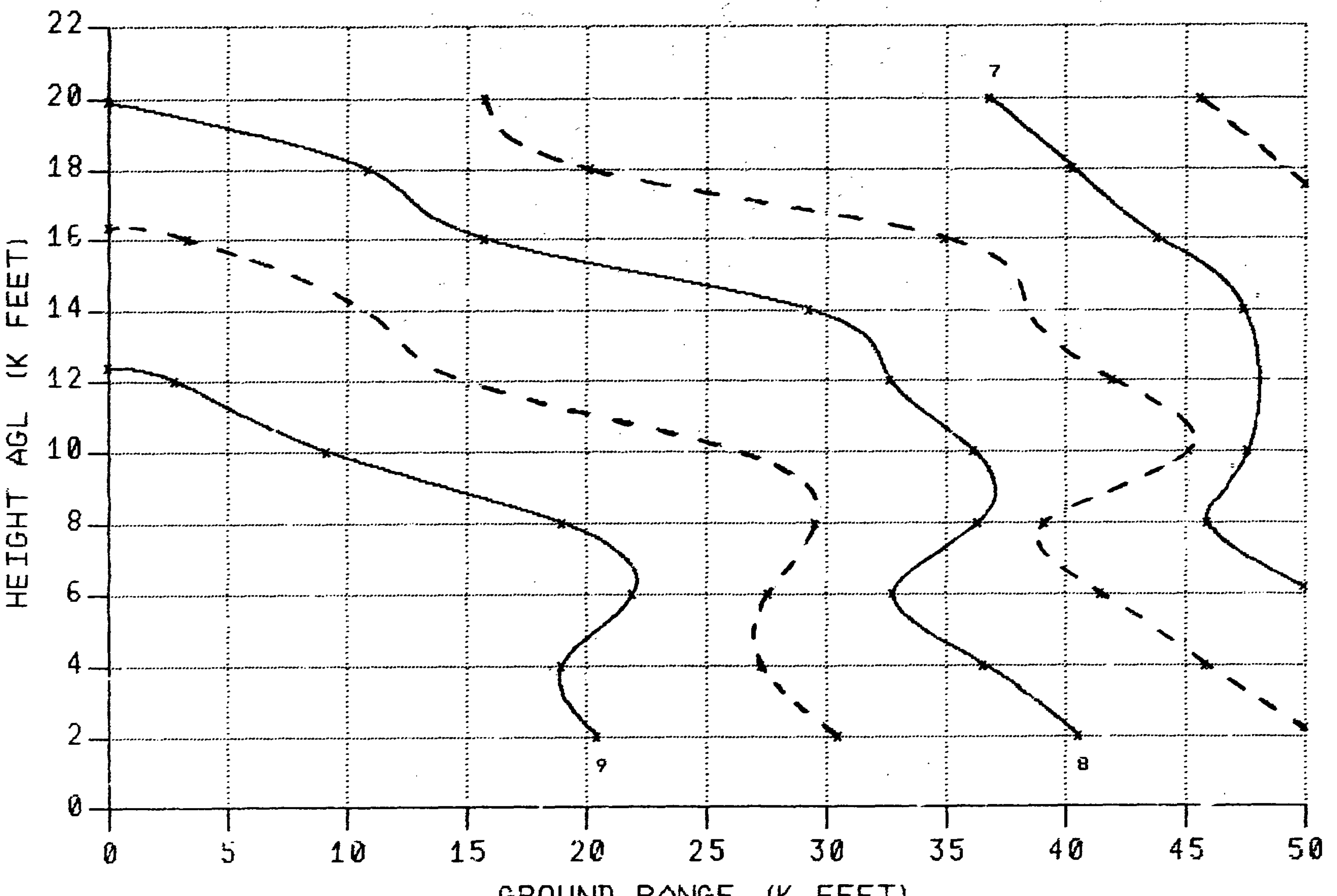
CLOUD COVER: CLR-SCT BKGND. REFLECTANCE: 50 TO 99 PERCENT
SOLAR ELEV. ANGLE : 56 TO 90 DEGREE
SURFACE VISIBILITY: 10 MILES (16.1 KM)
MIXING LYR. DEPTH : BELOW 50 FEET



CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

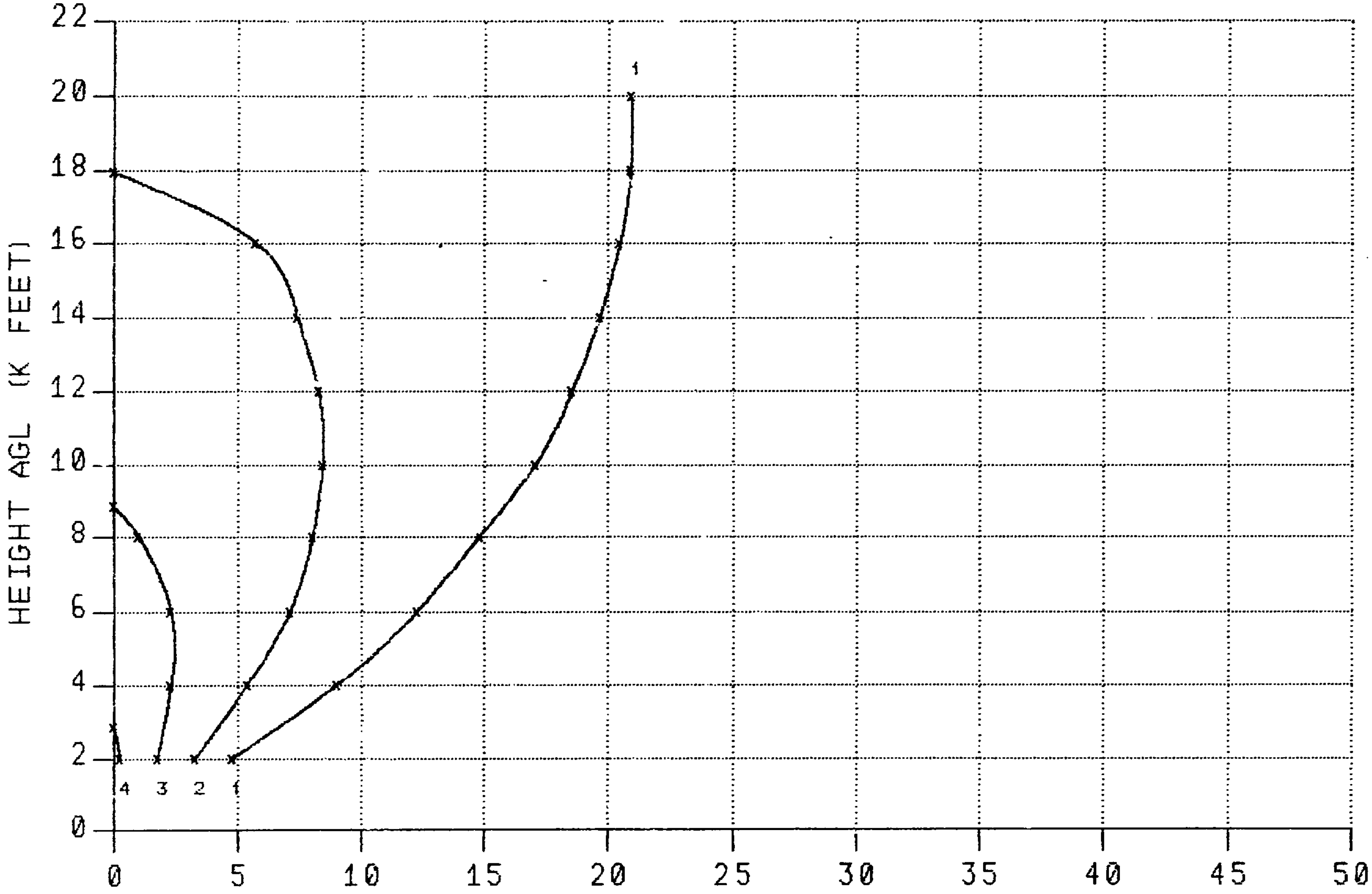
CLOUD COVER: CLR-SCT

BKGND. REFLECTANCE: 50 TO 99 PERCENT
SOLAR ELEV. ANGLE : 56 TO 90 DEGREE
SURFACE VISIBILITY: 15 MILES (24.1 KM)
MIXING LYR. DEPTH : BELOW 50 FEET



CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

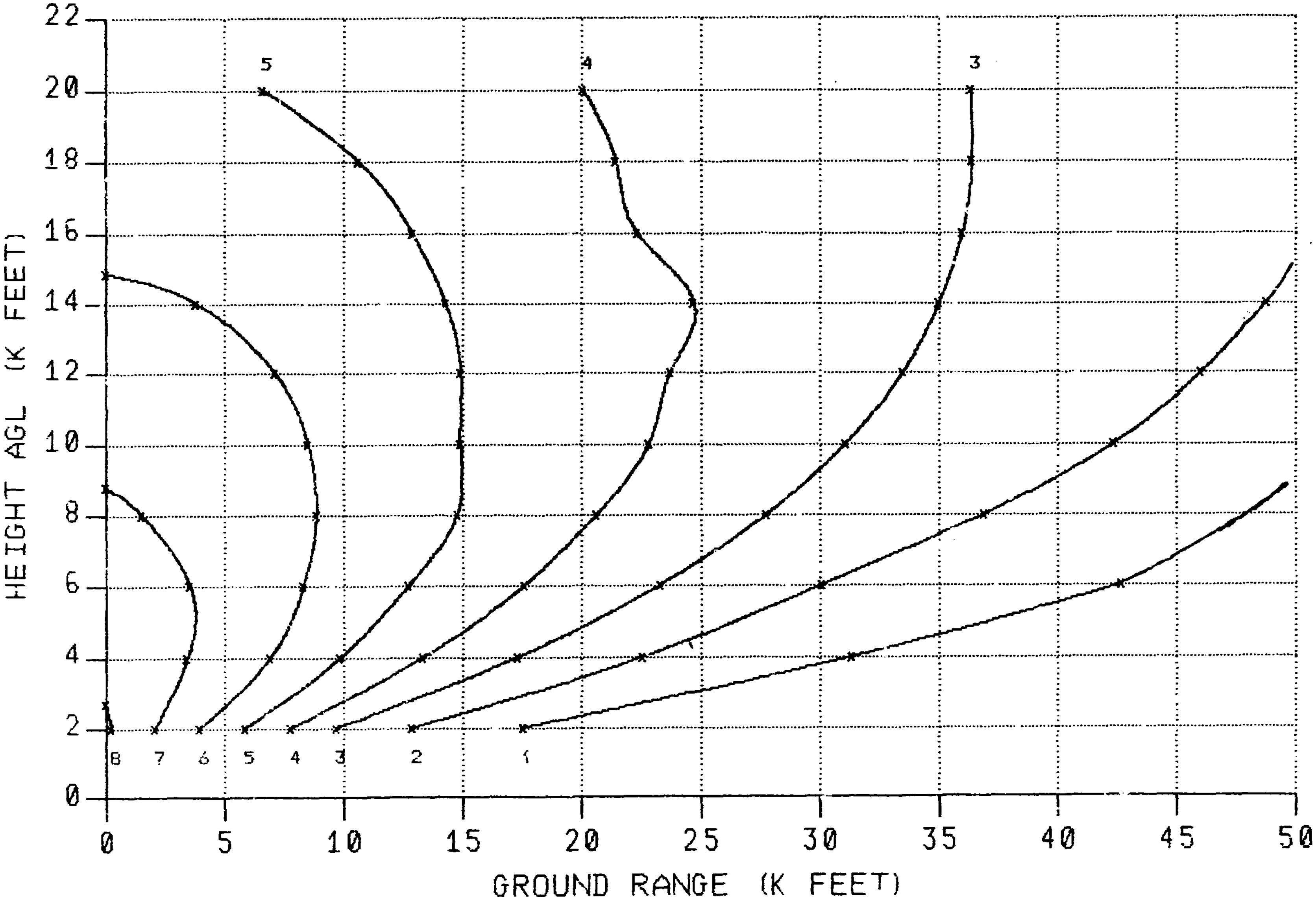
CLOUD COVER: CLR-SCT BKGND. REFLECTANCE: 50 TO 99 PERCENT
SOLAR ELEV. ANGLE : 56 TO 90 DEGREE
SURFACE VISIBILITY: 1 MILE (1.6 KM)
MIXING LYR. DEPTH : 1500 FEET



GROUND RANGE (K FEET)
CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

CLOUD COVER: CLR-SCT

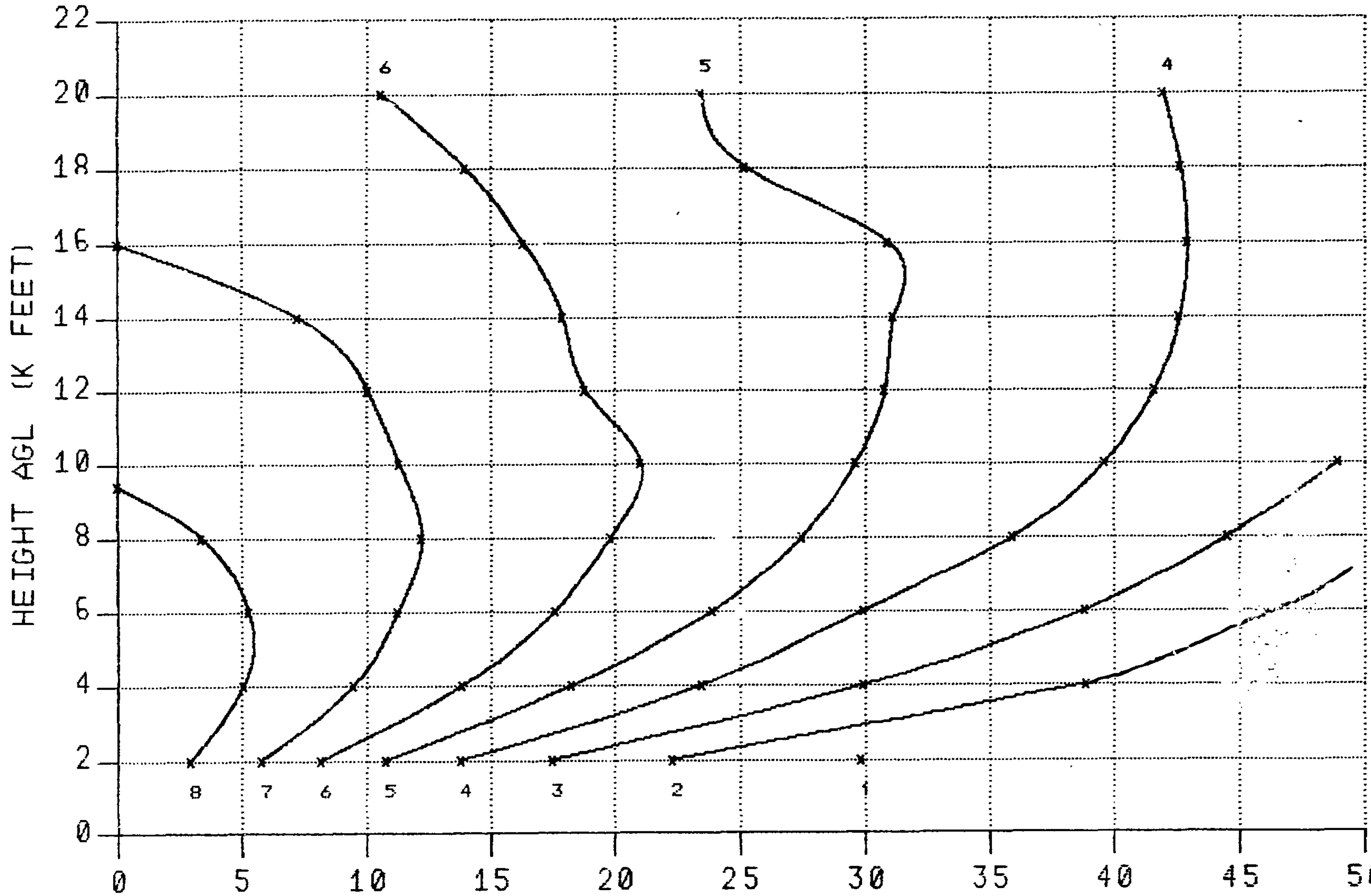
BKGND. REFLECTANCE: 50 TO 99 PERCENT
SOLAR ELEV. ANGLE : 56 TO 90 DEGREE
SURFACE VISIBILITY: 3 MILES (4.8 KM)
MIXING LYR. DEPTH : 1500 FEET



CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

CLOUD COVER: CLR-SCT

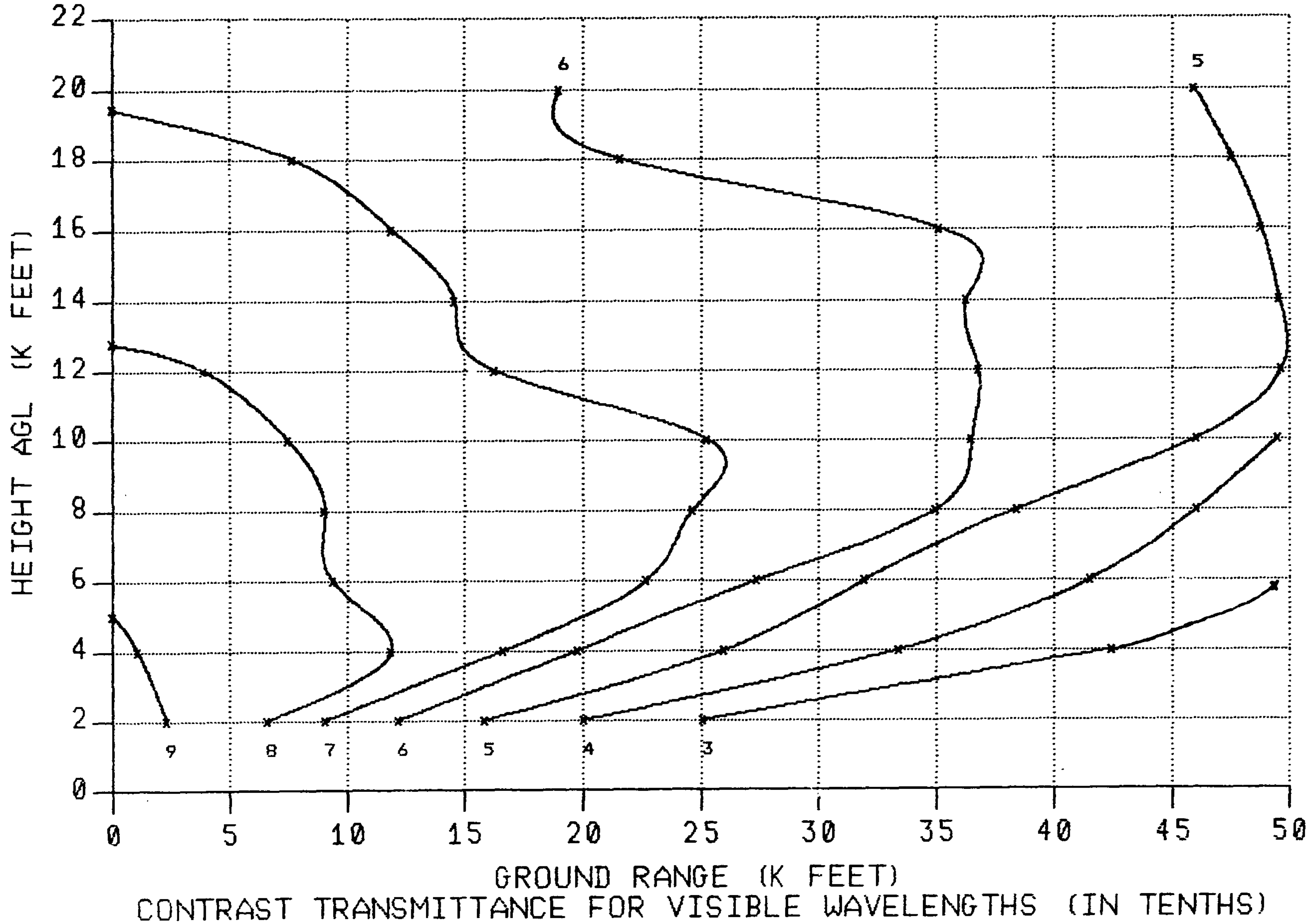
BKGND. REFLECTANCE: 50 TO 99 PERCENT
SOLAR ELEV. ANGLE : 56 TO 90 DEGREE
SURFACE VISIBILITY: 5 MILES (8.0 KM)
MIXING LYR. DEPTH : 1500 FEET



GROUND RANGE (K FEET)
CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

CLOUD COVER: CLR-SCT

BKGND. REFLECTANCE: 50 TO 99 PERCENT
SOLAR ELEV. ANGLE : 56 TO 90 DEGREE
SURFACE VISIBILITY: 7 MILES (11.3 KM)
MIXING LYR. DEPTH : 1500 FEET



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SURFACE VISIBILITY: 10 MILES (16.1 KM)
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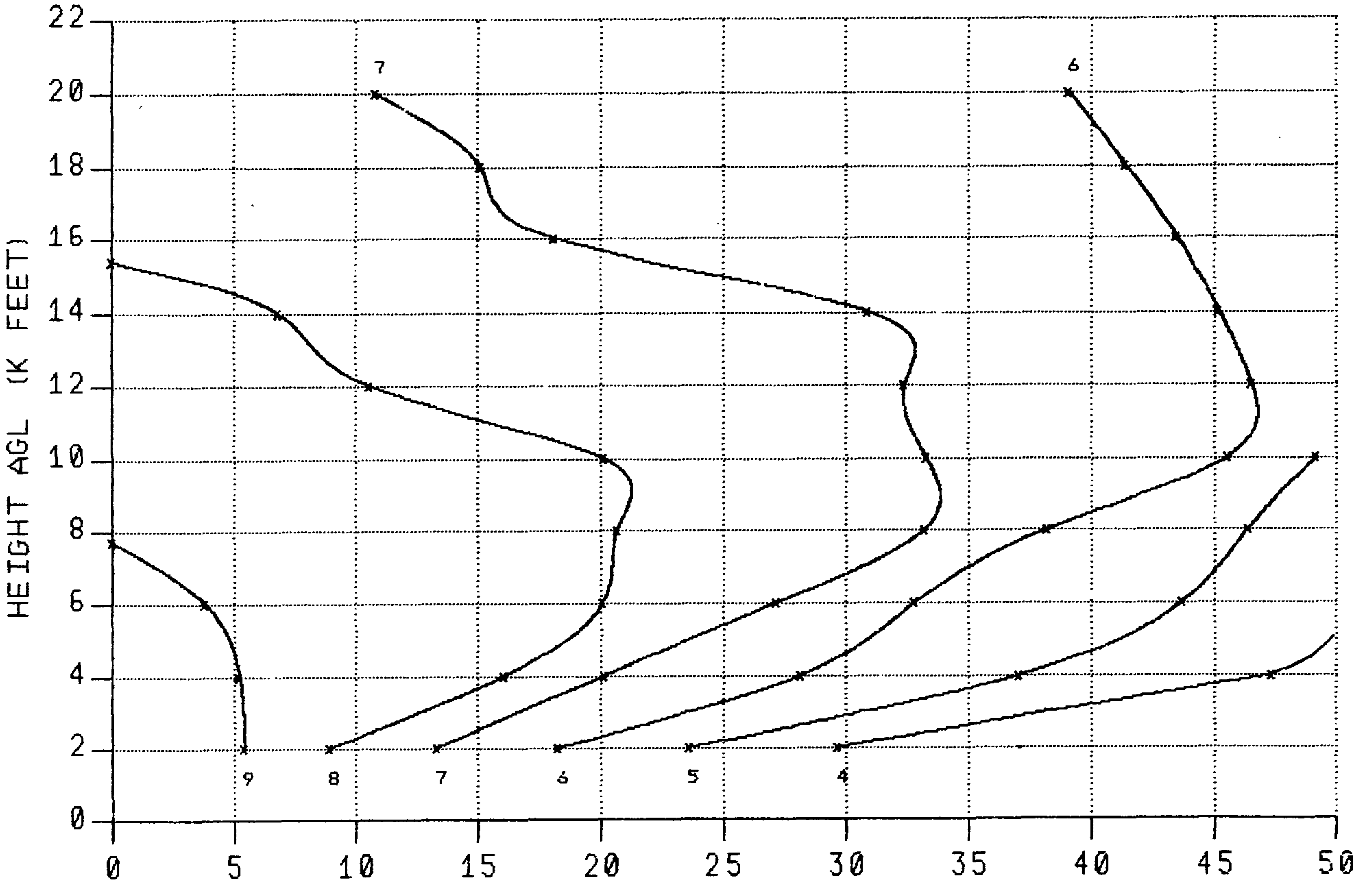
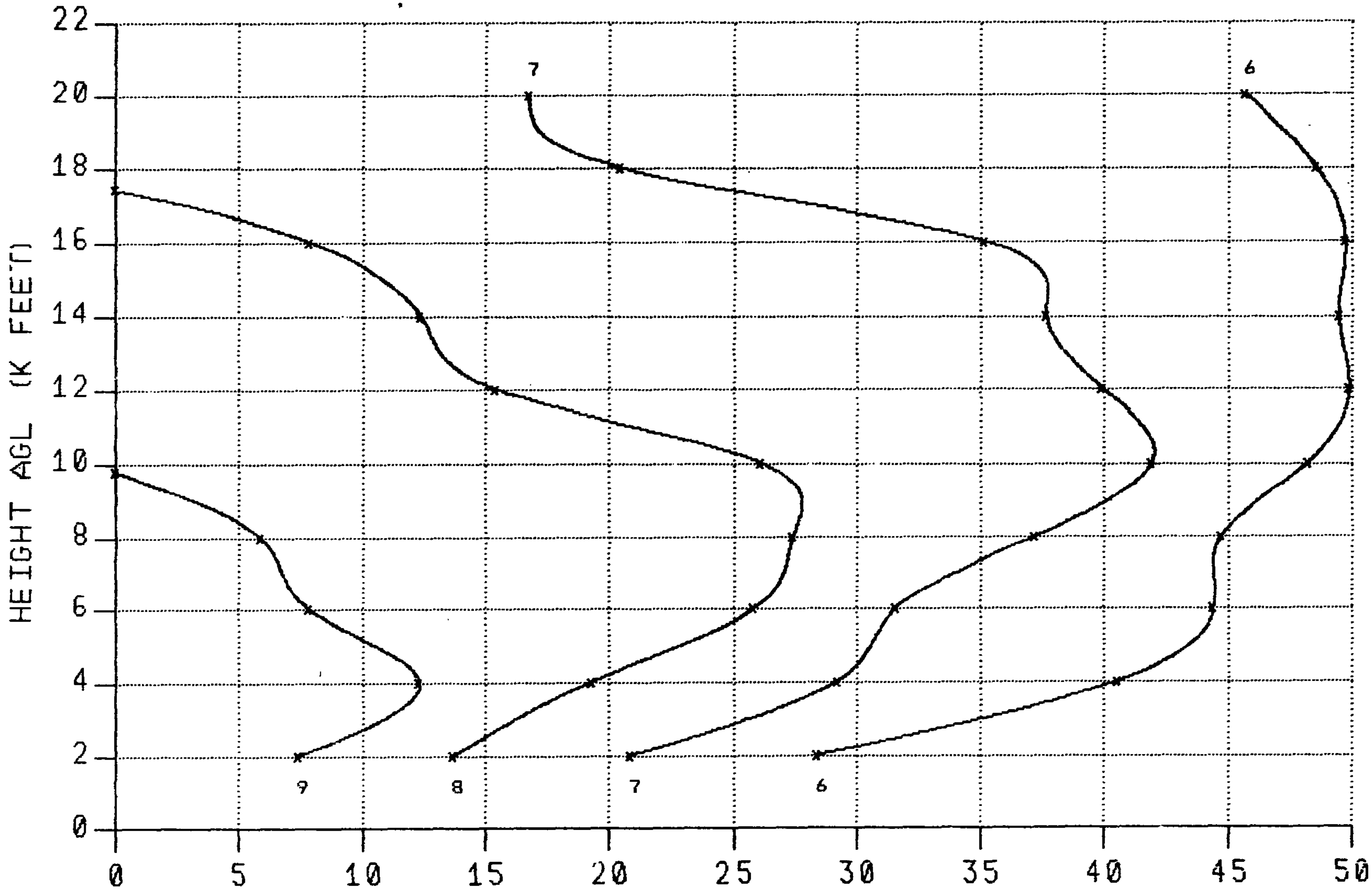


CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

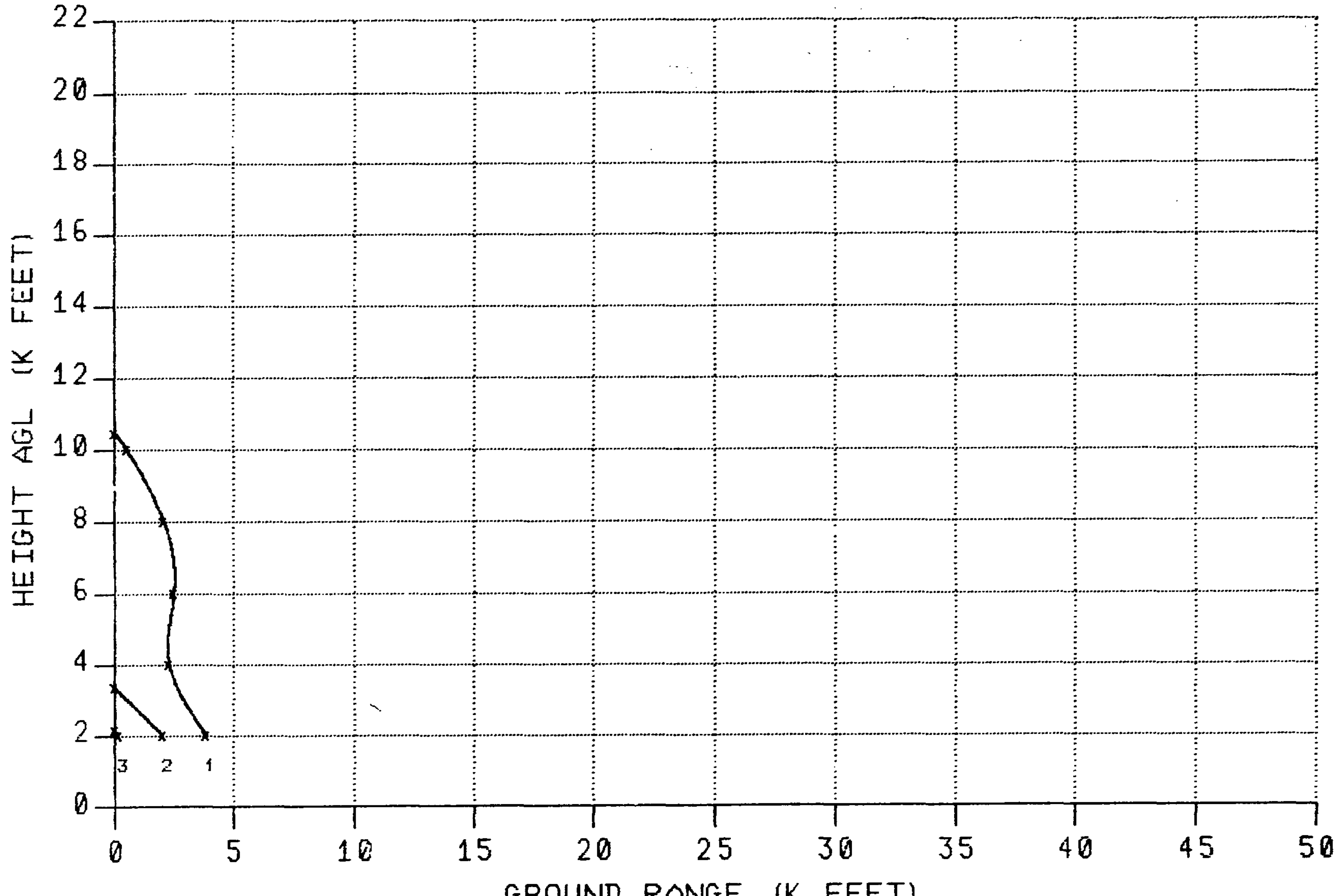
CLOUD COVER: CLR-SCT BKGND. REFLECTANCE: 50 TO 99 PERCENT
SOLAR ELEV. ANGLE : 56 TO 90 DEGREE
SURFACE VISIBILITY: 15 MILES (24.1 KM)
MIXING LYR. DEPTH : 1500 FEET



CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

CLOUD COVER: CLR-SCT

BKGND. REFLECTANCE: 50 TO 99 PERCENT
SOLAR ELEV. ANGLE : 56 TO 90 DEGREE
SURFACE VISIBILITY: 1 MILE (1.6 KM)
MIXING LYR. DEPTH : 3000 FEET



CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

CLOUD COVER: CLR-SCT

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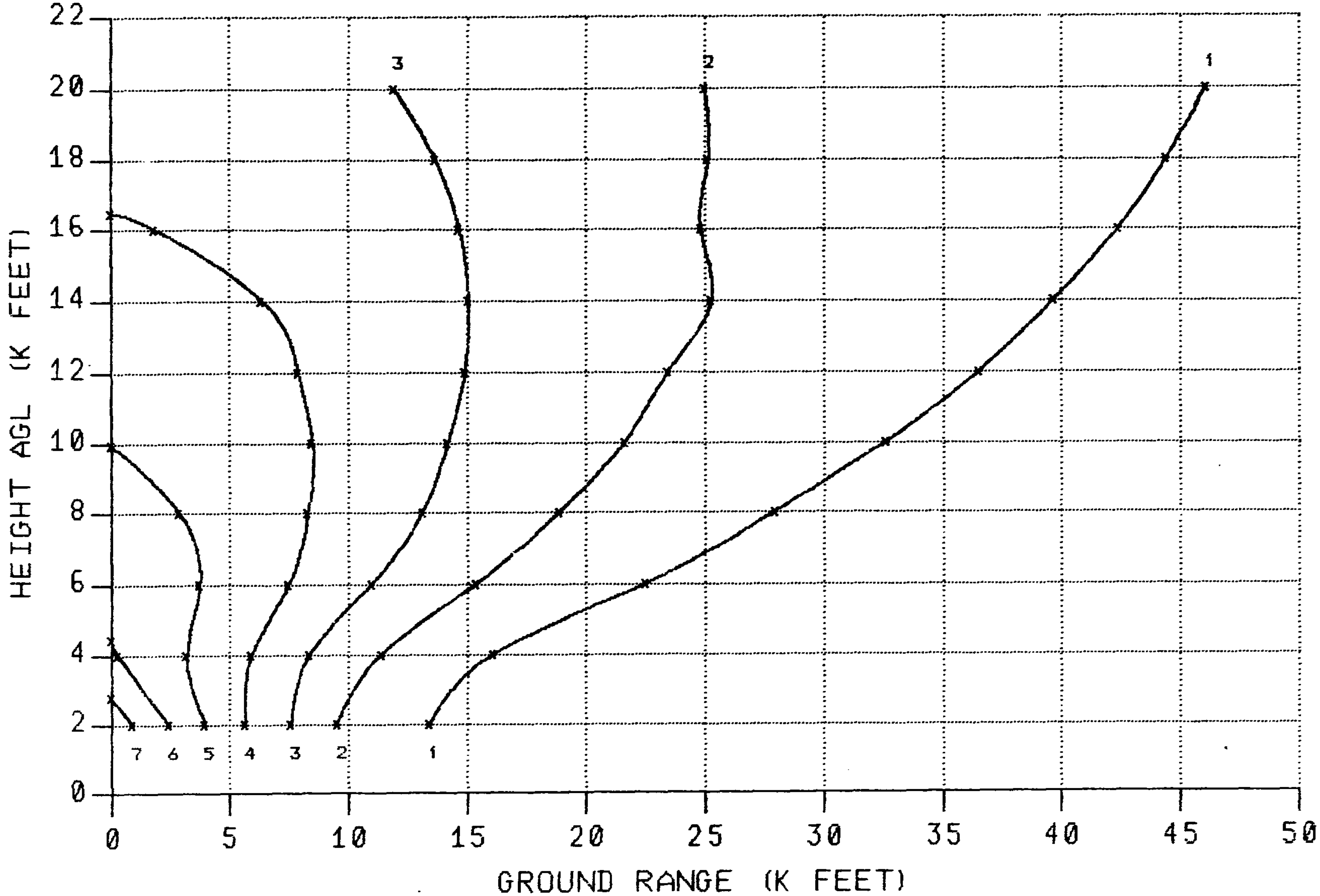

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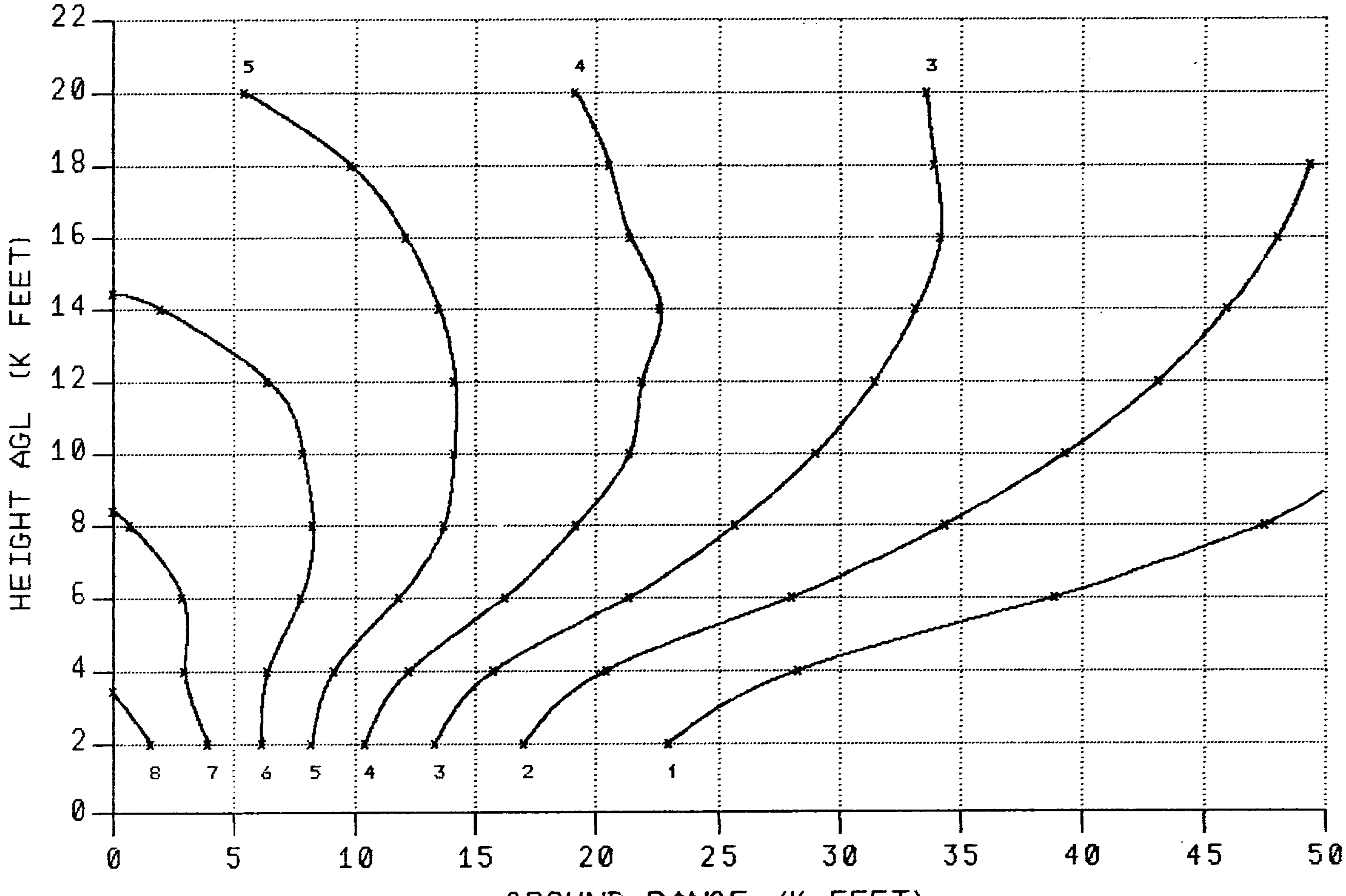

CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

CLOUD COVER: CLR-SCT

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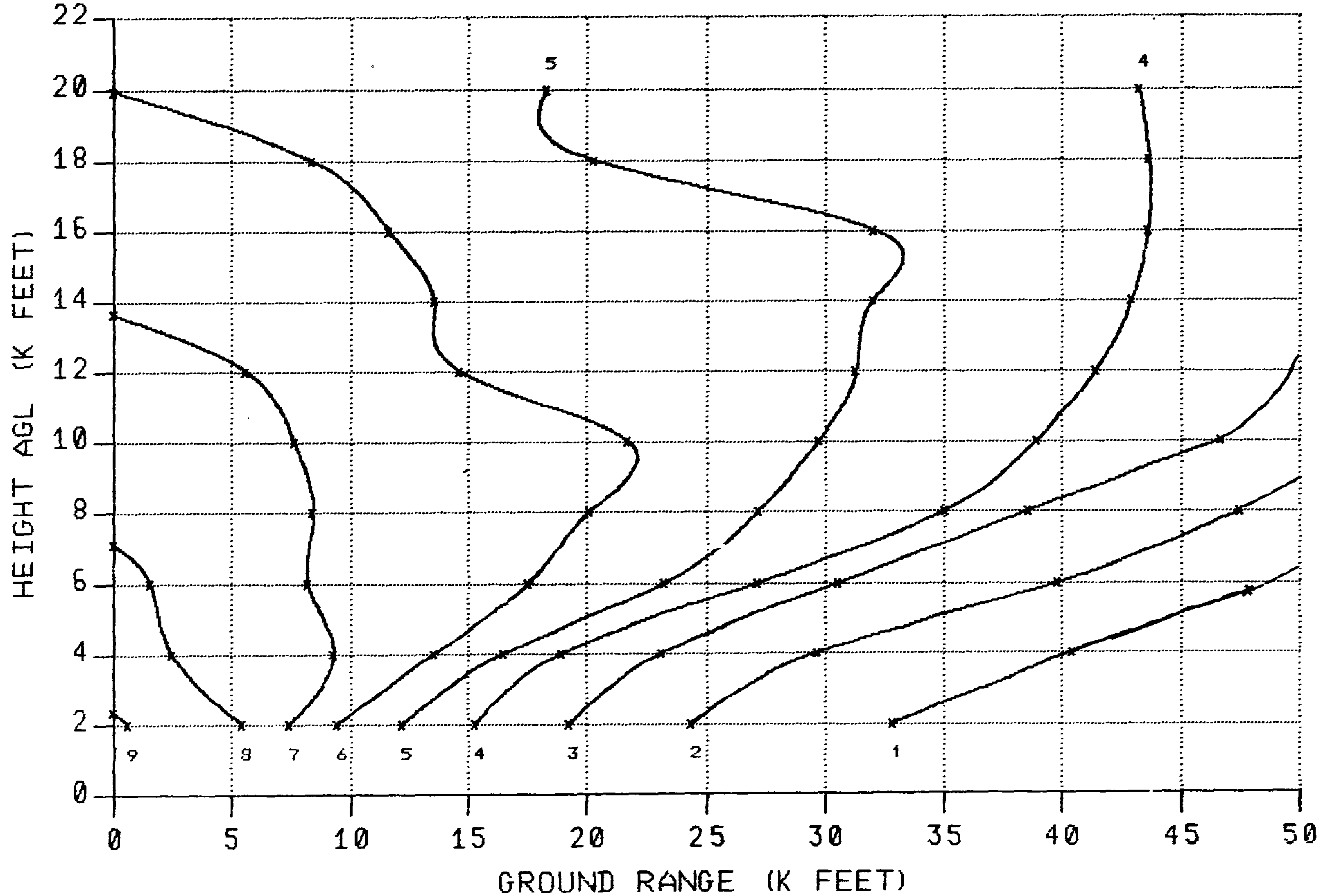
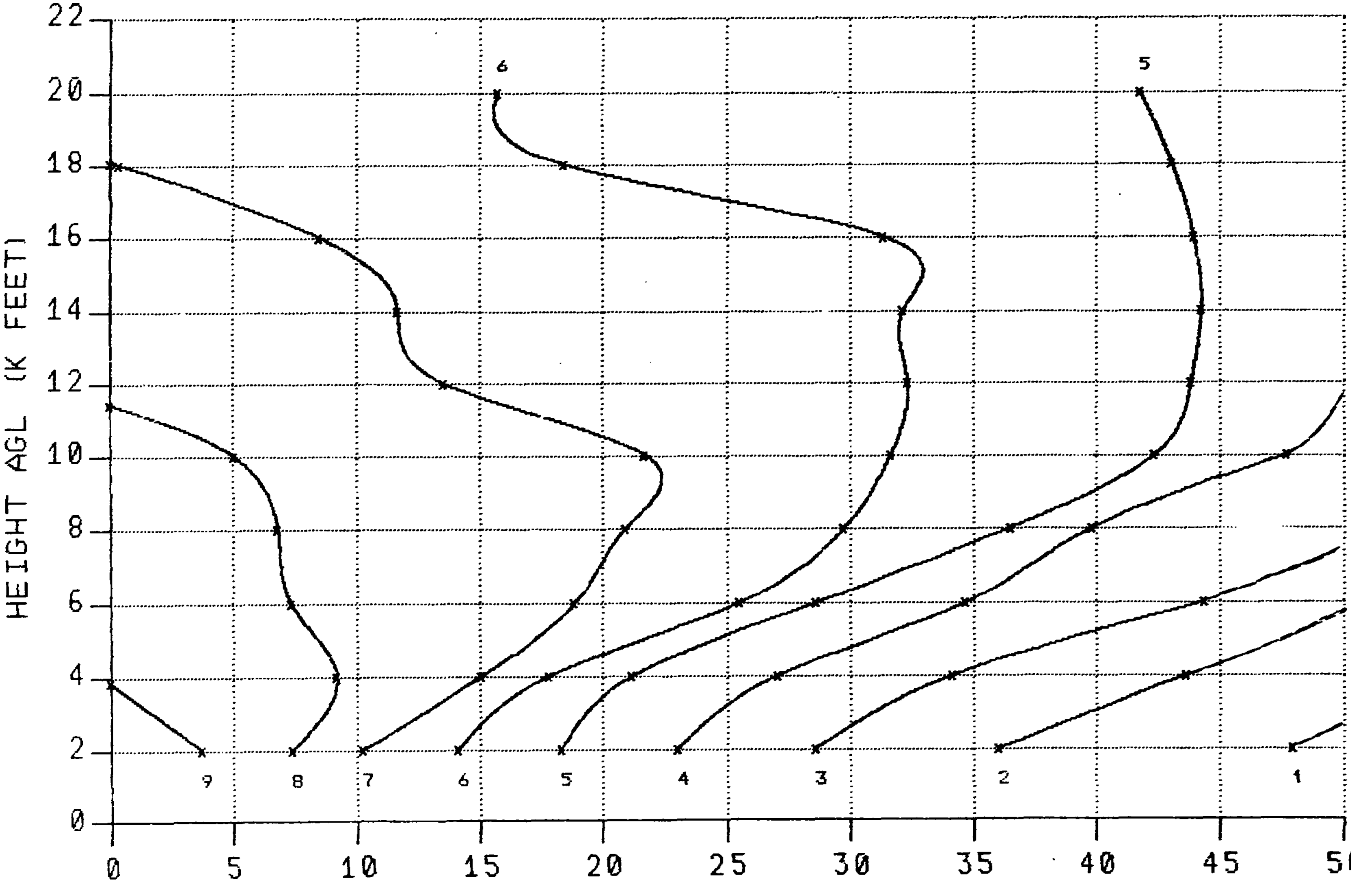
MIXING LYR. DEPTH : 3000 FEET



CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

CLOUD COVER: CLR-SCT

BKGND. REFLECTANCE: 50 TO 99 PERCENT
SOLAR ELEV. ANGLE : 56 TO 90 DEGREE
SURFACE VISIBILITY: 10 MILES (16.1 KM)
MIXING LYR. DEPTH : 3000 FEET



CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

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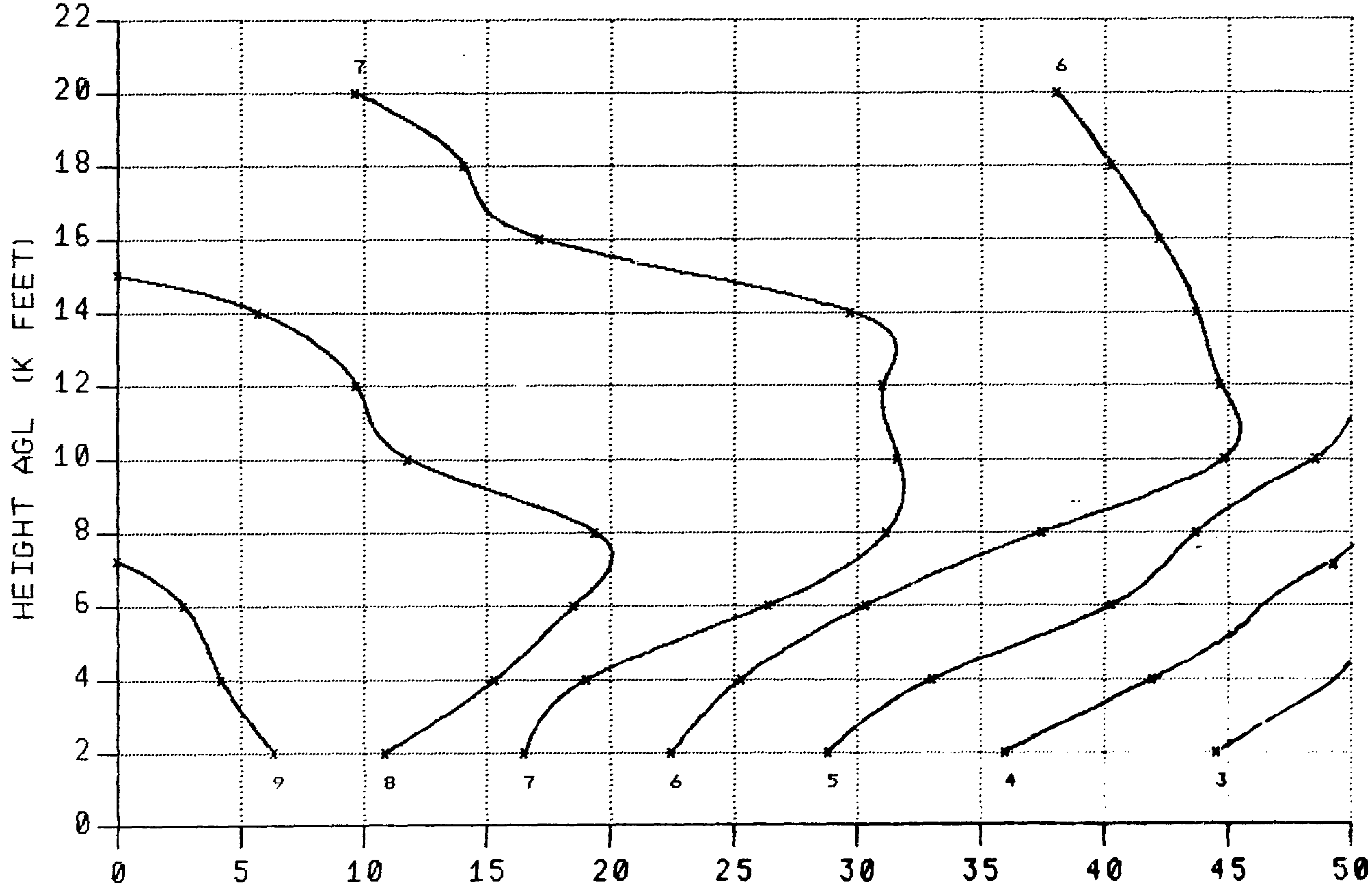
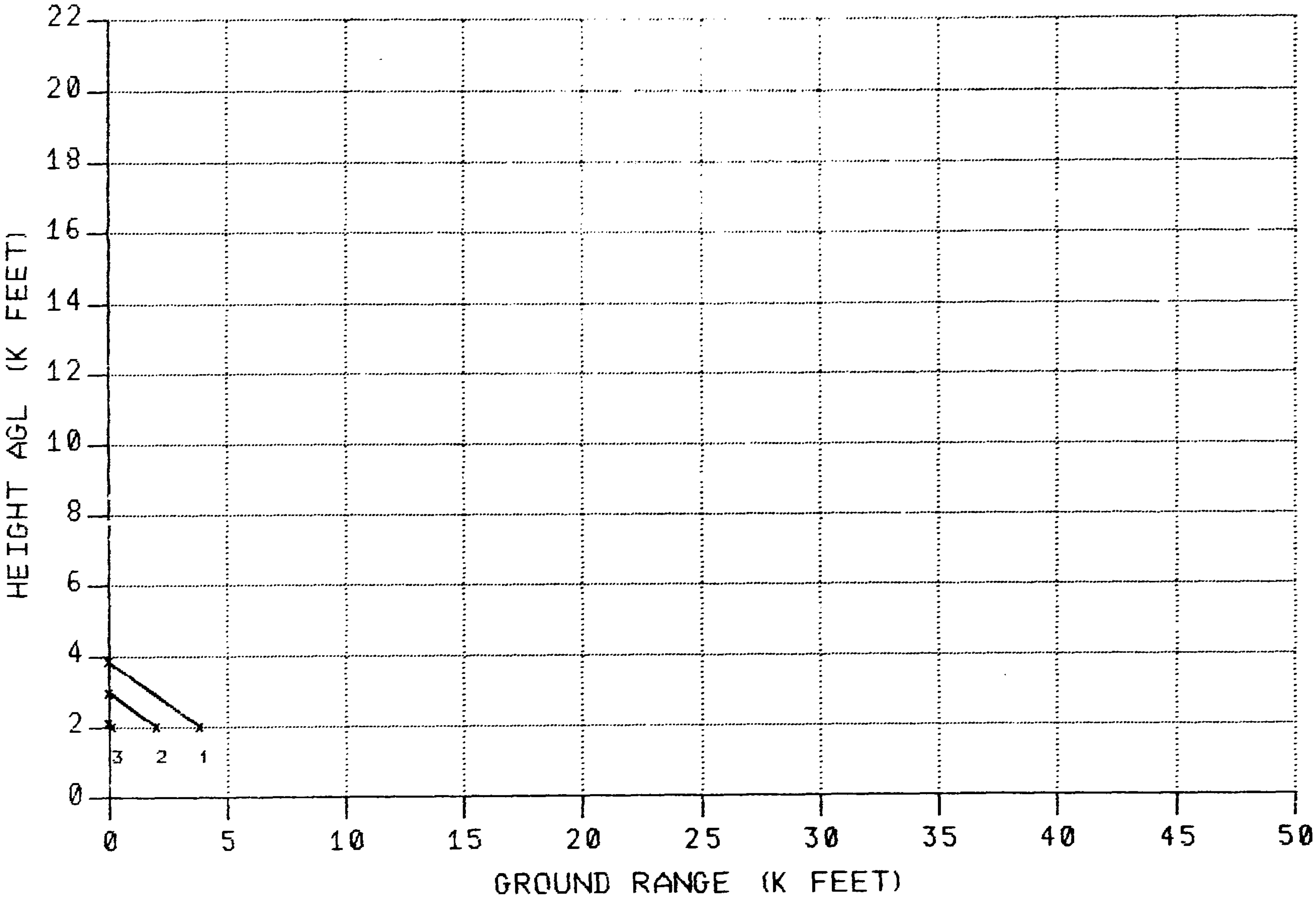
SOLAR ELEV. ANGLE : 56 TO 90 DEGREE
SURFACE VISIBILITY: 15 MILES (24.1 KM)
MIXING LYR. DEPTH : 3000 FEET



CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

CLOUD COVER: CLR-SCT

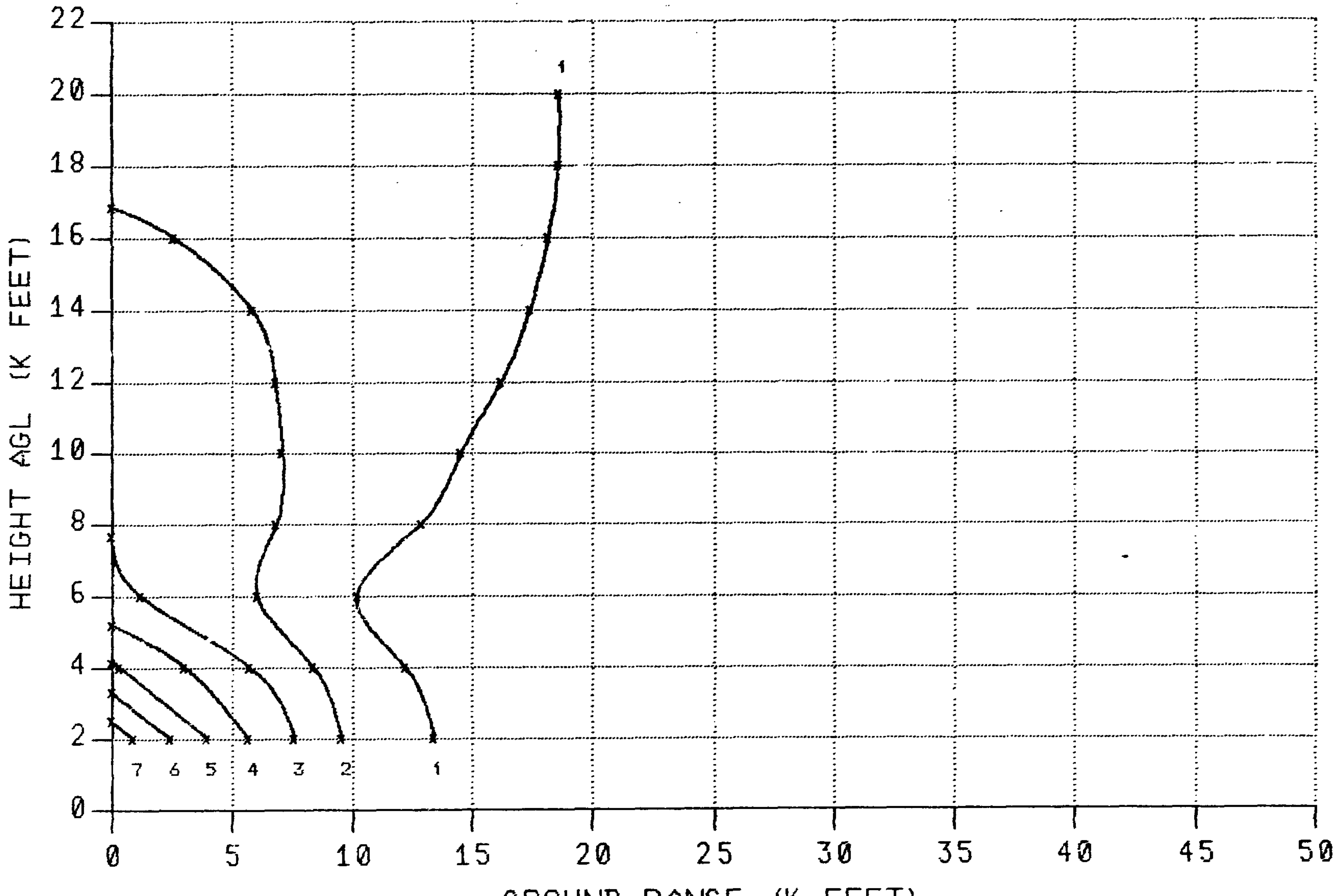
BKGND. REFLECTANCE: 50 TO 99 PERCENT
SOLAR ELEV. ANGLE : 56 TO 90 DEGREE
SURFACE VISIBILITY: 1 MILE (1.6 KM)
MIXING LYR. DEPTH : 6000 FEET



CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

CLOUD COVER: CLR-SCT

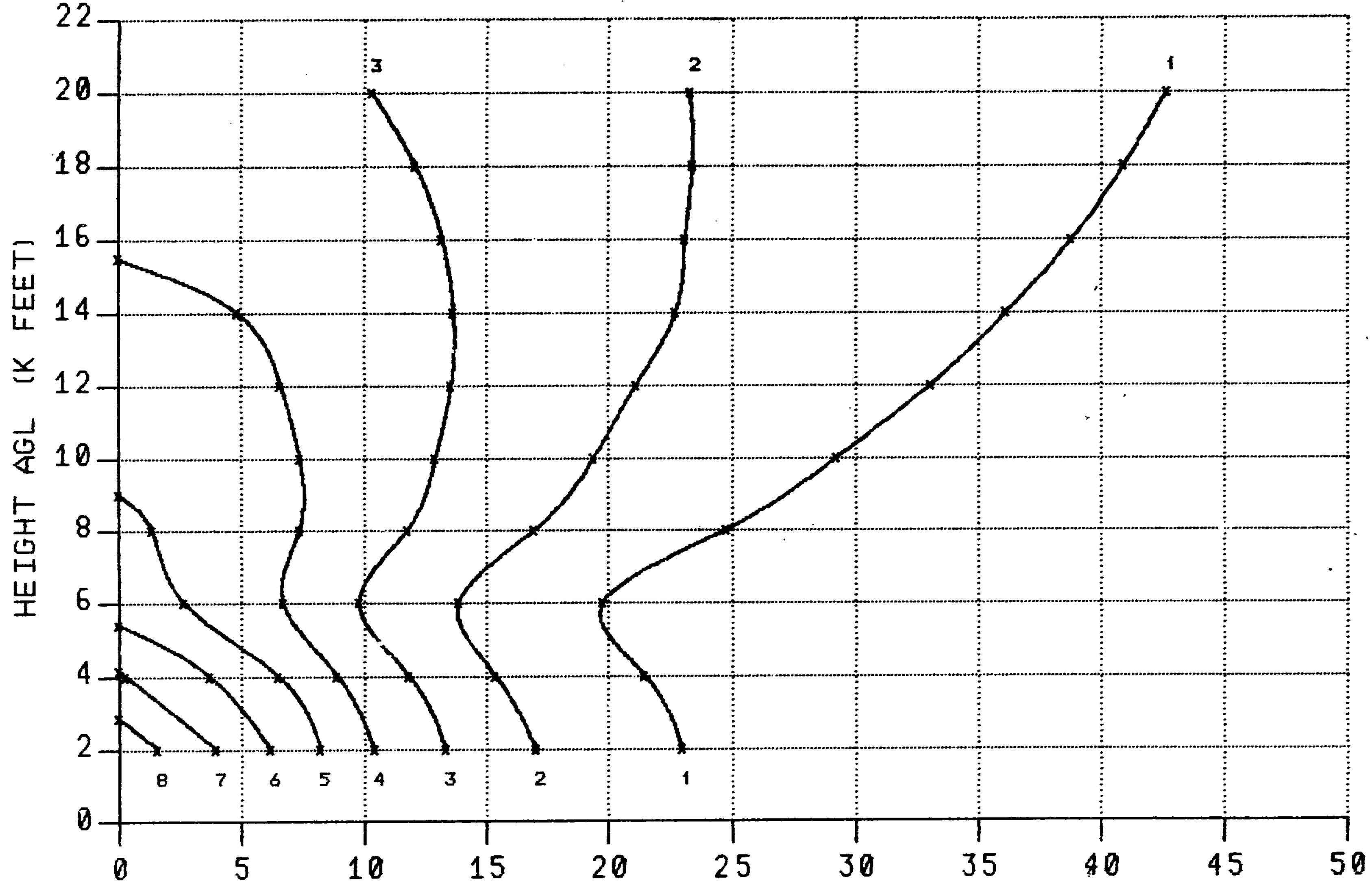
BKGND. REFLECTANCE: 50 TO 99 PERCENT
SOLAR ELEV. ANGLE : 56 TO 90 DEGREE
SURFACE VISIBILITY: 3 MILES (4.8 KM)
MIXING LYR. DEPTH : 6000 FEET



CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

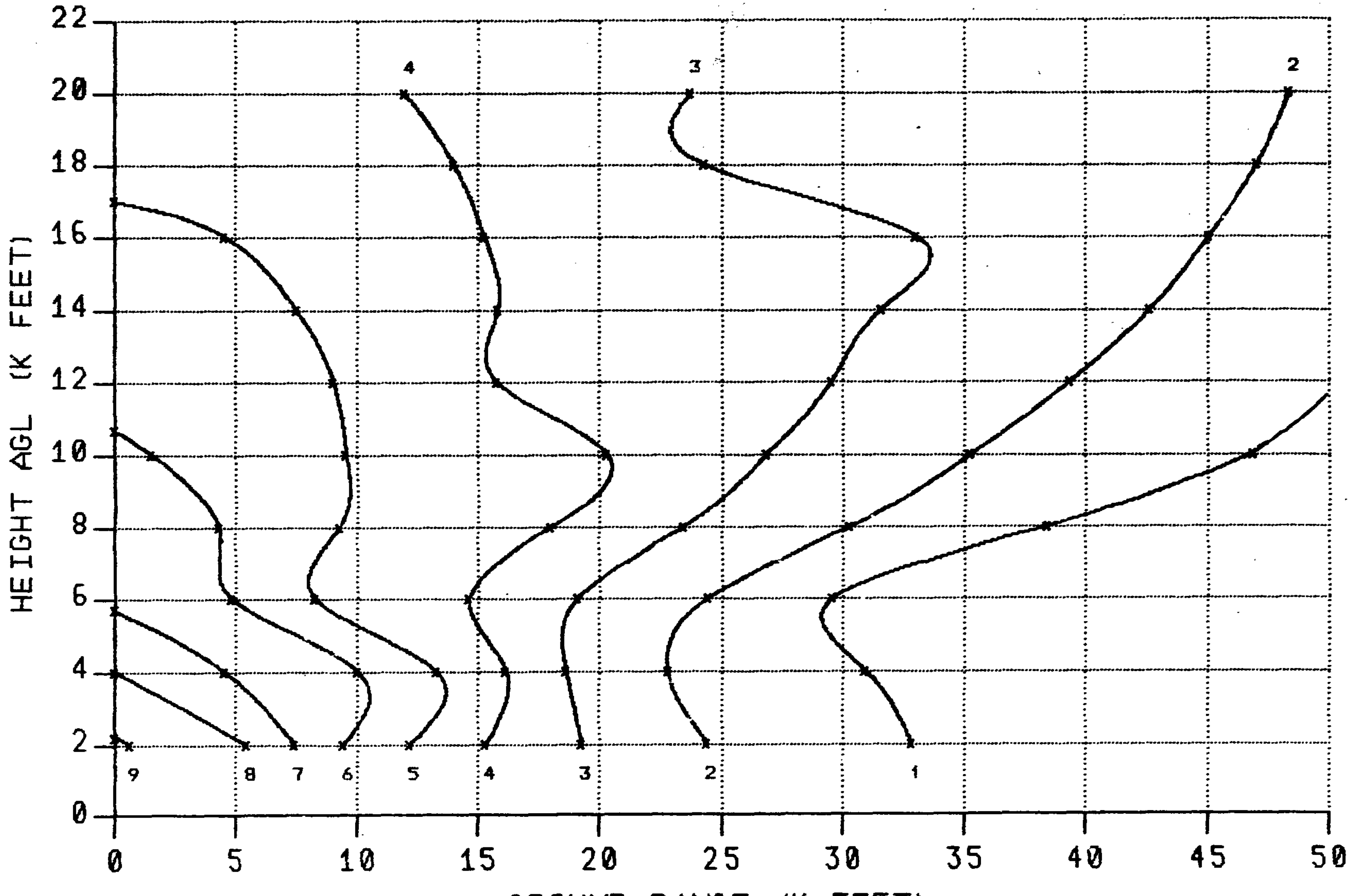
CLOUD COVER: CLR-SCT

BKGND. REFLECTANCE: 50 TO 99 PERCENT
SOLAR ELEV. ANGLE : 56 TO 90 DEGREE
SURFACE VISIBILITY: 5 MILES (8.0 KM)
MIXING LYR. DEPTH : 6000 FEET



GROUND RANGE (K FEET)
CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

CLOUD COVER: CLR-SCT BKGND. REFLECTANCE: 50 TO 99 PERCENT
SOLAR ELEV. ANGLE : 56 TO 90 DEGREE
SURFACE VISIBILITY: 7 MILES (11.3 KM)
MIXING LYR. DEPTH : 6000 FEET



CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

CLOUD COVER: CLR-SCT

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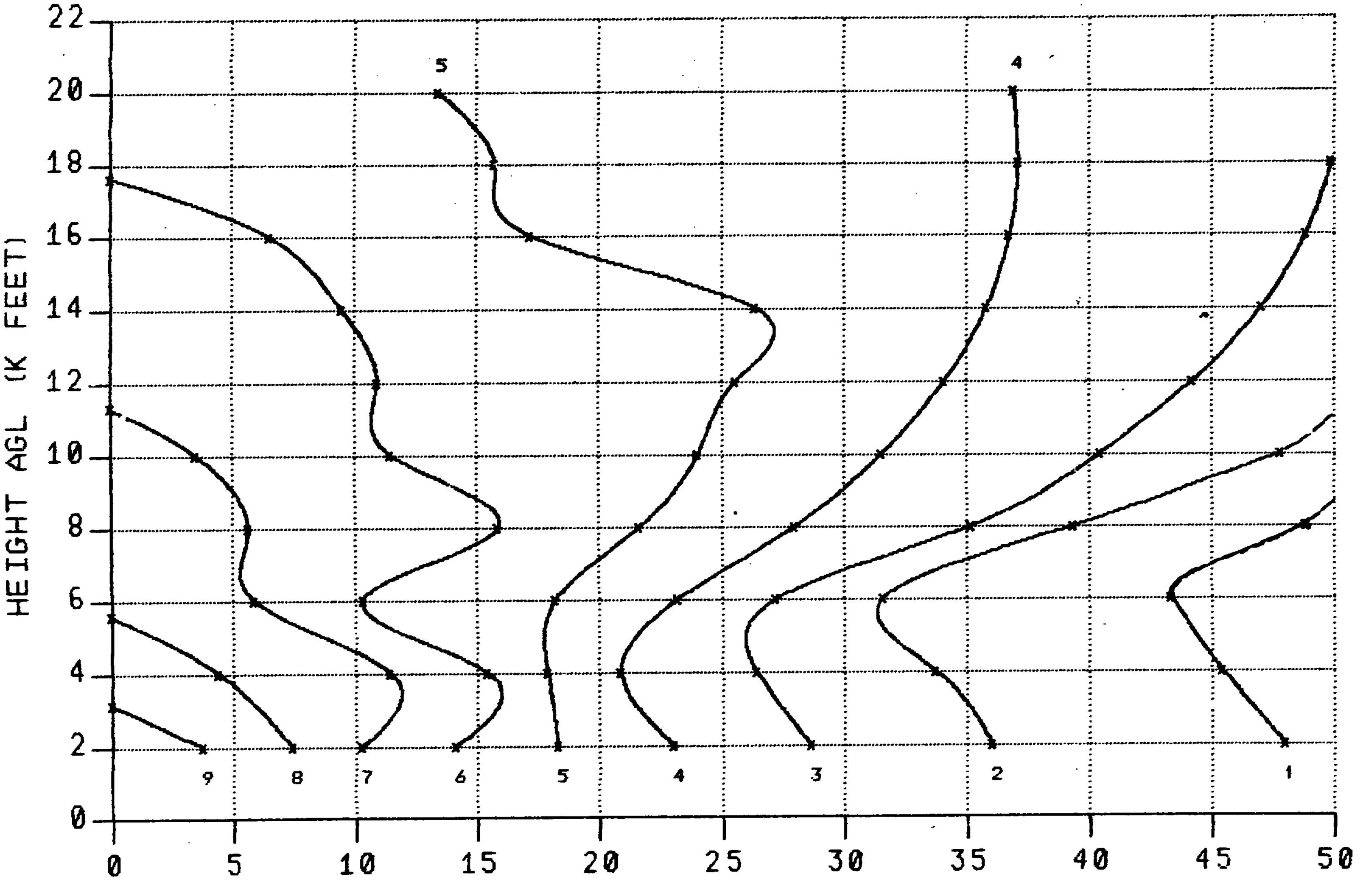
SOLAR ELEV. ANGLE : 56 TO 90 DEGREE
SURFACE VISIBILITY: 10 MILES (16.1 KM)
MIXING LYR. DEPTH : 6000 FEET



CONTRAST TRANSMITTANCE FOR VISIBLE WAVELENGTHS (IN TENTHS)

SUPPLEMENTARY

INFORMATION

UNCLASSIFIED

AD NUMBER

AD-B082 564

NEW LIMITATION CHANGE

TO

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FROM

DISTRIBUTION STATEMENT - B

LIMITATION CODE: 3

AUTHORITY

James S. Perkins, DAF, AFWA STINFO, via DTIC FM 55, CNTRL NO 8071011, 16 Mar 1998.

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ERRATA

REQUEST FOR LIMITED DOCUMENT	DTIC CONTROL NO. 8071011	USER CONTROL NO. A687001

I. REQUEST AND JUSTIFICATION

AD NUMBER: AD-B082 564L

DATE REQUESTED: MAR 11, 1998

REPORT CLASSIFICATION: UNCLASSIFIED 03

DISTRIBUTION STATEMENT: DISTRIBUTION LIMITED TO U.S. GOV'T. AGENCIES ONLY; ADMINISTRATIVE/OPERATIONAL USE; 1 MAY 84. OTHER REQUESTS MUST BE REFERRED TO USAFETAC/DNE, SCOTT AFB, IL 62225.

BIBLIOGRAPHIC INFORMATION: (The following data elements will be printed in this order: Report Title, Personal Authors, Report Date Monitor Acronym Monitor Series, Report Number, Contract Number and Corporate Author.)

USER'S MANUAL FOR ESTIMATING TARGET ACQUISITION RANGE WHEN EMPLOYING TV SENSORS. ABEL, M. D. ;C AUBER,C. J. ;REGAN,D. P. ;COX,R. M. ;COMPTON,K. J. ; DEC, 1983 SBI AD-E850 643 USAFETAC/TN-83/004 AIR FORCE ENVIRONMENTAL TECHNICAL APPLICATIONS CENTER SCOTT AFB IL

REQUIRED FOR (Explain need in detail include applicable contracts) FOR RESEARCH AND ANALYSES SUPPORTING VISUAL TARGET DETECTION OF SYSTEMS.

II. REQUESTING ORGANIZATION AND GOVERNMENT SPONSOR IDENTIFICATION

REQUESTING ORGANIZATION AND ADDRESS
SYSTEM PLANNING CORP
ATTN: MGR TECH LIB P W MOON
PO BOX 12314
ARLINGTON, VA 222190000

TITLE NAME: RESEARCHER MOON

USER CODE: 20874 | REGISTERED CONTRACT NUMBER: APCP5

FACILITY CLEARANCE: TOP SECRET | CONTRACT CLEARANCE: SECRET

GOVERNMENT SPONSOR AND ADDRESS
US ARMY MISSILE COMMAND
AATTN: AMSMI-RD-TI
REDSTONE ARSENAL, ALABAMA 35898-5243

TYPE COPY AND QUANTITY
☒ PAPER COPY 01 COPY(S) ☐ MICROFORM ____ COPY(S)

METHOD OF PAYMENT
☒ CHARGE TO NTIS DEPOSIT ACCOUNT NO. 76490
☐ BILL MY ORGANIZATION TO THE ATTENTION OF:

CONTRACT MONITOR AND TELEPHONE NUMBER
MS JESSICA H. HJACKSON

III. RELEASING AGENCY DECISION

RELEASING AGENCY AND ADDRESS
USAFETAC/DNE
SCOTT AFB, IL 62225

#98227171

☐ APPROVED FOR RELEASE TO REQUESTER IN SECTION II
☒ APPROVED FOR RELEASE TO ALL REGISTERED DTIC USERS WITH ADEQUATE SECURITY CLEARANCE AND NEED-TO-KNOW
☐ DISAPPROVED. REASON FOR DISAPPROVAL.

[illegible]

TYPED NAME AND TITLE: [illegible]

SIGNATURE: [illegible]

DATE: [illegible]

DEPARTMENT OF THE AIR FORCE
HEADQUARTERS AIR FORCE WEATHER AGENCY
SCOTT AIR FORCE BASE, ILLINOIS

16 MAR 98

MEMORANDUM FOR DTIC-OCD
ATTN: Mr. Bush

FROM: AFWA Scientific and Technical Information Officer (STINFO)
c/o AFCCC/DOL
859 Buchanan Street
Scott AFB IL 62225-5116

SUBJECT: Change of Distribution Statement on USAFETAC/TN-83-/004

1. We have received a request (DTIC Control #8071011) for a copy of USAFETAC/TN-83/004* "User's Manual for Estimating Target Acquisition Range When Employing TV Sensors" for a DoD contractor. The technical note was originally limited in distribution to U.S government agencies only. In 1990, the Air Weather Service STINFO reviewed and delimited that technical note, making it "Cleared for Public Release." I can find no correspondence indicating we told you that before, so please update your records accordingly.

2. I have sent a paper copy of the delimited tech note directly to the contractor making the request. If you have any questions, I'm at DSN 576-4044.

James S. Perkins

JAMES S. PERKINS, DAF
AFWA STINFO

cc: DTIC-BCS with DTIC Fm 55

* ADB Ø82564

Completed
15 May 2000
BW

CHOOSE THE WEATHER FOR BATTLE